Source: **T1**

Title: **CRs to TS 34.123-1 v.5.9.0 for approval**

Agenda item: **5.1.3**

Document for: **Approval**

This document contains the CRs to TS 34.123-1 v.5.9.0. These CRs have been agreed by T1 and are put forward to TSG T for approval.

Doc-2nd-Level	*CR*	*Rev*	*Phase*	*Subject*	*Cat*	*Version-Current*	*Version-New*
T1-041512	949	-	Rel-5	Modification of SIB5 content for package 4 testcase 14.4.2a.1 and Addition of Specific Message Content for Radio Bearer Setup message in section 14.4.2a.	F	5.9.0	5.10.0
T1-041526	950	-	Rel-5	Corrections to RRC Package 2 TC 8.2.4.3	F	5.9.0	5.10.0
T1-041528	951	-	Rel-5	CR to 34.123-1 Rel-5: Correction to SIBs 3 and 4 for 3 MM test cases and 9 GMM test cases for cell selection	F	5.9.0	5.10.0
T1-041538	952	-	Rel-5	Clarification in test case 11.3.3.1.	F	5.9.0	5.10.0
T1-041543	953	-	Rel-5	Corrections to low priority RRC TCs 8.2.3.21, 8.2.6.26 and 8.2.6.32	F	5.9.0	5.10.0
T1-041544	954	-	Rel-5	Correction to Low Priority NAS test case 12.2.1.5a.Proc2	F	5.9.0	5.10.0
T1-041545	955	-	Rel-5	Correction to contents of SIB 11 and Cell Update in testcase 8.4.1.3	F	5.9.0	5.10.0
T1-041546	956	-	Rel-5	Revisions to Package 3 measurement test cases 8.4.1.34, 8.4.1.35 and 8.4.1.36	F	5.9.0	5.10.0
T1-041547	957	-	Rel-5	Correction to package 4 RRC test case 8.1.12	F	5.9.0	5.10.0
T1-041548	958	-	Rel-5	Corrections to package 4 ISHO test case 8.3.7.12	F	5.9.0	5.10.0
T1-041554	959	-	Rel-5	Correction to Low Priority RRC Test case 8.4.1.6	F	5.9.0	5.10.0
T1-041560	960	-	Rel-5	Correction to P2 Inter-RAT cell reselection test cases 6.2.2.1 and 6.2.2.2	F	5.9.0	5.10.0
T1-041569	961	-	Rel-5	CR to 34.123-1Rel-5: Correction of 8_4_1_1A for TDD	F	5.9.0	5.10.0
T1-041570	962	-	Rel-5	CR to 34.123-1Rel-5: Correction of 8_4_1_3A for TDD	F	5.9.0	5.10.0
T1-041571	963	-	Rel-5	CR to 34.123-1Rel-5: Correction of 8_4_1_5A for TDD	F	5.9.0	5.10.0
T1-041572	964	-	Rel-5	CR to 34.123-1Rel-5: Correction of 8_4_1_7A for TDD	F	5.9.0	5.10.0
T1-041587	965	-	Rel-5	CR to 34.123-1 Rel-5; Modification of low priority test case 8.2.4.24 to increase test coverage	F	5.9.0	5.10.0
T1-041588	966	-	Rel-5	CR to 34.123-1 Rel-5; New Rel-5	B	5.9.0	5.10.0

				Measurement Test Case			
T1-041592	967	-	Rel-5	Correction to package 2 approved RAB test case 14.2.29	F	5.9.0	5.10.0
T1-041593	968	-	Rel-5	Correction to MAC-hs test cases	F	5.9.0	5.10.0
T1-041596	969	-	Rel-5	Correction to package 1 MAC approved test case 7.1.1.2	F	5.9.0	5.10.0
T1-041597	970	-	Rel-5	Correction to package 2 RRC approved test case 8.3.1.22	F	5.9.0	5.10.0
T1-041602	971	-	Rel-5	Add sections for tests on Shared Channels	F	5.9.0	5.10.0
T1-041603	972	-	Rel-5	Add generic test procedure for tests Shared Channels	F	5.9.0	5.10.0
T1-041604	973	-	Rel-5	Add to HCR TDD baseline IEs statement	F	5.9.0	5.10.0
T1-041605	974	-	Rel-5	Add HCR to TDD IEs of Measurement report in 8.4.1.29.4	F	5.9.0	5.10.0
T1-041610	975	-	Rel-5	CR to 34.123-1 R5: New test cases for A-GPS failure cases	F	5.9.0	5.10.0
T1-041612	976	-	Rel-5	CR to 34.123-1 R5: Editorial corrections to A-GPS test cases	F	5.9.0	5.10.0
T1-041613	977	-	Rel-5	CR to 34.123-1 R5: Corrections to A-GPS test cases	F	5.9.0	5.10.0
T1-041632	978	-	Rel-5	Correction to low priority RRC test case 8.3.2.5	F	5.9.0	5.10.0
T1-041634	979	-	Rel-5	Correction to package 2 GMM approved test case 12.4.2.2	F	5.9.0	5.10.0
T1-041637	979	-	Rel-5	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RRC test case 8.3.2.13	F	5.9.0	5.10.0
T1-041639	980	-	Rel-5	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RRC test case 8.3.1.24	F	5.9.0	5.10.0
T1-041640	981	-	Rel-5	CR to 34.123-1 Rel-5: Correction to GCF Package 4 RRC test case 8.2.2.4	F	5.9.0	5.10.0
T1-041656	982	-	Rel-5	P-TMSI Change in RAU message (GPRS) for GCF Package 2 test case 12.8	F	5.9.0	5.10.0
T1-041688	983	-	Rel-5	Correction of package 3 radio bearer test case 14.2.58	F	5.9.0	5.10.0
T1-041691	984	-	Rel-5	Corrections to RB TCs 14.2.51a.1 (P3), 14.2.51a.2 (low-prio), 14.2.51b.1 (P3) and 14.2.51b.2 (low-prio)	F	5.9.0	5.10.0
T1-041692	985	-	Rel-5	Addition of radio bearer test case for PS streaming and downlink rate up to 128 kbps	F	5.9.0	5.10.0
T1-041704	986	-	Rel-5	CR to 34.123-1 Rel-5: Correction to prose for Package 2 MM test case 9.4.5.4.1 (Revision of T1-041527)	F	5.9.0	5.10.0
T1-041705	987	-	Rel-5	Correction to Package 4 RRC test case 8.1.7.1d	F	5.9.0	5.10.0
T1-041733	988	-	Rel-5	New HSDPA radio bearer test cases	F	5.9.0	5.10.0
T1-041739	989	-	Rel-5	Correction to GMM test case 12.9.7a	F	5.9.0	5.10.0
T1-041760	990	-	Rel-5	Corrections to RRC Package 4 test cases 8.4.1.42 & 8.4.1.43 (revision of T1-0401636)	F	5.9.0	5.10.0
T1-041783	991	-	Rel-5	Correction to Package 1 measurement test case 8.4.1.5	F	5.9.0	5.10.0
T1-041784	992	-	Rel-5	Correction to prose for Package 2 MM test case 9.4.2.1	F	5.9.0	5.10.0
T1-041787	993	-	Rel-5	Corrections to MM Package 2 TC 9.4.9 revision of T1-041539.	F	5.9.0	5.10.0
T1-041795	994	-	Rel-5	Correction to TC 8.2.4.1a	F	5.9.0	5.10.0
T1-041796	995	-	Rel-5	Correction to TC 8.2.6.44	F	5.9.0	5.10.0
T1-041807	996	-	Rel-5	Correction to Package 3 Idle Mode test case 6.1.1.7	F	5.9.0	5.10.0
T1-041808	997	-	Rel-5	Correction to Package 4 test case 8.1.2.4	F	5.9.0	5.10.0

T1-041904	998	-	Rel-5	Correction to Inter-RAT idle mode Package 2 test case 6.2.1.8	F	5.9.0	5.10.0
T1-041906	999	-	Rel-5	CR to 34.123-1 Rel-5: Correction to Radio Bearer Setup used for RLC testing	F	5.9.0	5.10.0
T1-041907	1000	-	R99	Correction to Package 4 RRC test case 8.3.7.5	F	5.9.0	5.10.0
T1-041908	1001	-	Rel-5	Correction to Package 4 RRC test case 8.1.3.9	F	5.9.0	5.10.0
T1-041909	1002	-	Rel-5	Correction to Package 2 RRC test case 8.3.1.21	F	5.9.0	5.10.0
T1-041910	1003	-	Rel-5	Correction to Package 3 RRC test case 8.3.2.11	F	5.9.0	5.10.0
T1-041911	1004	-	Rel-5	Clarification in test case 11.2.2.2	F	5.9.0	5.10.0
T1-041912	1005	-	Rel-5	Correction to Package 1 RRC test case 8.1.7.1b	F	5.9.0	5.10.0
T1-041913	1006	-	Rel-5	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RAB test cases 14.2.51b.1 & 14.2.38c (Revision of T1-041644)	F	5.9.0	5.10.0
T1-041915	1007	-	Rel-5	Correction to prose for Package 4 RRC test case 8.1.7.1c	F	5.9.0	5.10.0
T1-041916	1008	-	Rel-5	Correction to P1 RRC test case 8.4.1.1 (Revision of T1-041553)	F	5.9.0	5.10.0
T1-041917	1009	-	Rel-5	CR to 34.123-1 Rel-5: Correction to prose for Package 3 MM test case 9.4.7 (revision of T1-041530)	F	5.9.0	5.10.0
T1-041921	1010	-	Rel-5	More alignment of IE Names used in Clause 12 to the core specification	D	5.9.0	5.10.0
T1-041922	1011	-	Rel-5	Correction to Approved GCF P4 NAS Test Case 12.9.7c	F	5.9.0	5.10.0
T1-041924	1012	-	Rel-5	Corrections to high priority GMM test case 12.9.9	F	5.9.0	5.10.0
T1-041925	1013	-	Rel-5	CR to 34.123-1 Rel-5: Correction to GCF Package 1 GMM test cases 12.9.1.(Revision of T1-041642)	F	5.9.0	5.10.0
T1-041928	1014	-	Rel-5	Correction to GMM test cases in clause 12.9 (Revision of T1-041918)	F	5.9.0	5.10.0
T1-041929	1015	-	Rel-5	CR to 34.123-1 Rel-5; Corrections to HSDPA RRC test cases (revision of T1-041755)	F	5.9.0	5.10.0
T1-041930	1016	-	Rel-5	Correction to TC 12.9.8 (P4)	F	5.9.0	5.10.0
T1-041934	1017	-	Rel-5	New HSDPA RRC test cases (intra-frequency) (revision of T1-041799)	F	5.9.0	5.10.0
T1-041935	1018	-	Rel-5	New HSDPA RRC test cases (inter-frequency) (revision of T1-041800)	F	5.9.0	5.10.0
T1-041946	1019	-	Rel-5	Updating ëConformance requirementí in test case 11.1.4.1 and addition of lower layer signalling.	F	5.9.0	5.10.0
T1-041947	1020	-	Rel-5	Addition of inter-RAT handover test case to 34.123-1 (Revision of T1-041582)	F	5.9.0	5.10.0
T1-041949	1021	-	Rel-5	Correction to low priority RRC test case 8.2.6.34	F	5.9.0	5.10.0
T1-041950	1022	-	Rel-5	Alignment of IE values used in Clause 12 to the core specification (Revision of T1-041561)	F	5.9.0	5.10.0
T1-041953	1023	-	Rel-5	Correction to GCF P3 Test Case 8.4.1.29	D	5.9.0	5.10.0
T1-041954	1024	-	Rel-5	New test cases for Location updating / periodic search for HPLMN or higher priority PLMN when in VPLMN	F	5.9.0	5.10.0
T1-041955	1025	-	Rel-5	Update of HSDPA radio bearer test cases 14.6.1 and 14.6.2	F	5.9.0	5.10.0

T1-041956	1026	-	Rel-5	Correction to 14.1.2 (Revision of T1-041798)	F	5.9.0	5.10.0
T1-041957	1027	-	Rel-5	CR to 34.123-1 R5: New test cases for A-GPS transfer to third party	F	5.9.0	5.10.0
T1-041958	1028	-	Rel-5	CR to 34.123-1 R5: New test cases for A-GPS privacy options	F	5.9.0	5.10.0
T1-041959	1029	-	Rel-5	CR to 34.123-1 R5: Assistance data for UE-assisted A-GPS	F	5.9.0	5.10.0
T1-041960	1030	-	Rel-5	Update of radio bearer test case 14.2.62 for Wideband AMR	F	5.9.0	5.10.0
T1-041961	1031	-	Rel-5	CR to 34.123-1 Rel-5; New HSDPA RRC test cases (revision of T1-041589)	B	5.9.0	5.10.0
T1-041962	1032	-	Rel-5	New MAC-hs test case for transport format selection	F	5.9.0	5.10.0
T1-041966	1033	-	Rel-5	Removal of optional ëFollow-on request pendingí indicator in SM test case 11.1.1.1.	F	5.9.0	5.10.0
T1-041967	1034	-	Rel-5	Removal of optional ëFollow-on request pendingí indicator in SM test case 11.1.1.1a.	F	5.9.0	5.10.0
T1-041972	1035	-	Rel-5	CR to 34.123-1 Rel-5: Correction to GCF Package 4 RRC test case 8.3.1.18	F	5.9.0	5.10.0
T1-041977	1036	-	Rel-5	Correction to Package 2 IR_U test case 12.8	F	5.9.0	5.10.0
T1-041902rev1	1037	-	Rel-5	Correction to Package 2 testcase 8.4.1.7	F	5.9.0	5.10.0

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘T1-041512

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **949** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Modification of SIB5 content for package 4 testcase 14.4.2a.1 and Addition of Specific Message Content for Radio Bearer Setup message in section 14.4.2a.
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	14/09/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:⌘[H **1) SIB6 Indicator**

Clause **14.4.2a.1** specifies that SIB5 and SIB6 content should be the same as per 34.108 section 6.1.1.
The SIB5 content in section 6.1.1 of 34.108, has the SIB6 indicator set to TRUE, which suggests that SIB 6 should be present.

However, **34.108 section 6.1.0a.4.1** indicates that in test cases where two S-CCPCH are present, SIB 6 should not be transmitted. Therefore, the SIB6 Indicator in SIB5 should be set to FALSE.

2) Specific Message Content required for Radio Bearer Setup

In the test cases under clause **14.4.2a** two PS RABs are configured, which are mapped onto the same Transport Channel in UL and DL.

Therefore, the Radio Bearer Setup message sent is necessarily different from that mentioned in **TS 34.108 clause 9**.

Summary of change: ⌘
1) Added Specific Message Content for SIB5 in which the ìSIB6 indicatorî is set to ìFALSEî.
2) Added specific message content for the Radio Bearer Setup message for this test case.

Consequences if not approved: ⌘ Inconsistency will remain between 34.123-1 & 34.108

Clauses affected:	⌘	Section 14.4.2a, 14.4.2a.1.3			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects Rel-5, Rel-4 and R99 UEs.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<<START OF Modified Section>>

14.4.2a Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.2a.

This radio bearer configuration is tested with three different SYSTEM INFORMATION (BCCH) configurations:

1. The contents of System Information Block type 5 ~~and 6 as specified in TS 34.108, clause 6.1.1.~~shall be as per the message specific content.

   Two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 14.4.2a.1.

2. The contents of System Information Block type 5 as specified in TS 34.108, clause 6.1.3.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and both the second and third SCCPCHs carry the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 14.4.2a.2.

3. The contents of System Information Block type 5 and 6 as specified in TS 34.108, clause 6.1.2.

   Three SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH. The second SCCPCH carries the FACH for CTCH (Cell Broadcast Service) and the FACH for SRBs on CCCH/ BCCH for idle mode UEs. The third SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 14.4.2a.3.

Specific Message Content for Radio Bearer Setup message to be used for these test cases:

Use the RADIO BEARER SETUP message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
- RAB information for setup	
- RAB info	(AM DTCH for PS domain)
- RAB identity	0000 0101B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	20
- PDCP Info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	4
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	7
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RAB identity	0000 0110B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	
- RB identity	24
- PDCP info	Not Present
- CHOICE RLC info type	RLC info
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	4
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	
- Information for each multiplexing option	2 RBMuxOptions
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	DCH
- UL Transport channel identity	1
- Logical channel identity	10
- CHOICE RLC size list	Configured
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	DCH
- DL DCH Transport channel identity	6
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	10
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1
- Downlink transport channel type	FACH

Information Element	Value/remark
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	10

14.4.2a.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2a.1.1 Conformance requirement

See 14.2.4.1.

14.4.2a.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.2a and 6.10.2.4.4.2 for the case when two SCCPCHs are used in this SYSTEM INFORMATION configuration. The first SCCPCH carries the PCH and the second SCCPCH carries the FACH for two Interactive/Background 32 kbps PS RABs and the FACH for SRBs on CCCH/ DCCH/ BCCH.

To be able to test the downlink radio bearer using the UE loopback function, the reference radio bearer configuration according to TS 34.108, clause 6.10.2.4.4.2 (Interactive/Background 32 kbps PS RAB + Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2a.1.3 Method of Test

The contents of System Information Block type ~~5 and 6~~ shall be as ~~specified in TS 34.108, clause 6.1.1.~~ per the specific message content below.

See 14.1.1 for test procedure.

NOTE The test procedure for single radio bearer configurations is used as there are no uplink transport format combination for simultaneous data transmission on the PS radio bearers, nor any transport format combination for simultaneous data transmission and signalling.

Uplink TFS:

	TFI	RB7+RB8+SRB (2x32 kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB7 + RB8
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 + RB8 (2x32 kbps)
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	(SRB, RB7+RB8)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF0, TF1)
DL_TFC4	(TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (note)	Test data size (note)
1	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC1, UL_TFC0	RB7: 312 bits RB8: 312 bits	RB7: 312 bits RB8: No data
2	DL_TFC3	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC1, UL_TFC0	RB7: 312 bits RB8: 312 bits	RB7: No data RB8: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7 and RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size paramater has been set to the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit).						

Specific Message Contents

Use the default parameter values for the system information block 5 with the same type specified in clause

6.1.1 of TS 34.108, with the following exceptions

Information Element	Value/remark
- SIB6 indicator	FALSE

14.4.2a.1.4 Test Requirements

See 14.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be TF1 (1x360).
2. At step 15 the UE shall return
   - for sub test 1: an RLC SDU on RB7 having the same content as sent by SS
   - for sub test 2: an RLC SDU on RB8 having the same content as sent by SS

<<End OF Modified Section>>

3GPP TSG-T1 Meeting #25
Malta, Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041526

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 950 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections to RRC Package 2 TC 8.2.4.3
Source:	⌘	Ericsson
Work item code:	⌘	TEI
Date:	⌘	11/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	1. TC 8.2.4.3 was changed at T1#16 in T1-020533, then the testcase was changed in order to test a more likely scenario, that is rate reduction instead of change of scrambling code. To test rate reduction in a proper way it was decided to set up a Streaming CS call and then do Rate Reduction in both UL and DL for all transport channels via Transport Channel Reconfiguration. Since then the TC has been changed to do rate reduction of only SRBs instead. As the test case no longer tests what was intended in CR T1-020533 it can be simplified to use a normal CS call instead of explicitly test CS streaming. 2. The TC has several times been validated using the CS Conversational path instead of CS Streaming, therefore it is necessary to change the TC so it can be correctly validated.
Summary of change:	⌘	1. Initital condition clarified to be the normal state 6-9. 2. Specific message contents for Transport Channel Reconfiguration message changed to be in order with TTCN.
Consequences if not approved:	⌘	The test case prose does not align with the TTCN.

Clauses affected:	⌘	8.2.4.3

		Y	N		
Other specs	⌘		X	Other core specifications	⌘

affected:	X	Test specifications
	X	O&M Specifications
Other comments:	⌘	Affects Rel 99, Rel4 and Rel5 Ues.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.4.3 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and reversion to old configuration)

8.2.4.3.1 Definition

8.2.4.3.2 Conformance requirement

When a physical dedicated channel establishment is initiated by the UE, the UE shall start a timer T312 and wait for layer 1 to indicate N312 "in sync" indications. On receiving N312 "in sync" indications, the physical channel is considered established and the timer T312 is stopped and reset.

If the timer T312 expires before the physical channel is established, the UE shall consider this as a "physical channel establishment failure".

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

Ö

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

The UE shall:

1> in case of reception of a TRANSPORT CHANNEL RECONFIGURATION message:

Ö

2> transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.5.4.

8.2.4.3.3 Test purpose

To confirm that the UE reverts to the old configuration and transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, if the UE fails to reconfigure the new configuration according to a TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.3.4 Method of test

Initial Condition

System Simulator: 2 cells. ñ Cell 1 is active and cell 2 is inactive.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE. ~~Either a streaming CS domain RAB (state 6-9) or an interactive/ background PS domain RAB (state 6-10) has been established.~~

Test Procedure

Table 8.2.4.3

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/ 3.84 MHz	-60	-60	OFF	-75
P-CCPCH RSCP (TDD)	dBm	-60	-60	OFF	-75

Table 8.2.4.3 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 2.

The UE is in CELL_DCH state in cell 1. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. Then the SS configures its downlink transmission power settings according to column "T1" in table 8.2.4.3. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to restrict transmission on the uplink DCH used by the signalling radio bearer RB2. The message specifies a new configuration in cell 2 but the SS does not configure the new physical channel in cell 2 specified in this message and keep its old configuration in cell 1. Therefore, the UE cannot synchronise with the SS on the new physical channel in cell 2 and shall revert to the old configuration in cell 1 after T312 expires. Then the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting "physical channel failure" in IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2				The SS does not reconfigure the new configuration in cell 2.
3	→		TRANSPORT CHANNEL RECONFIGURATION FAILURE	The UE reverts to the old configuration and transmits this message.
4	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b and 4)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	1
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

TRANSPORT CHANNEL RECONFIGURATION (Step 1)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Non speech in CS", "Speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels - TFC subset - Restricted TrCH information - Uplink transport channel type - Restricted UL TrCh identity - Allowed TFIs - Allowed TFI	 DCH 5 <UL DCH for SRB 2> 0
Downlink information common for all radio links	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS"
Downlink information for each radio link list	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links - CHOICE mode - Primary CPICH info - Primary CPICH scrambling code	 FDD Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (FDD)

TRANSPORT CHANNEL RECONFIGURATION FAILURE (Step 2)

The contents of TRANSPORT CHANNEL RECONFIGURATION FAILURE message in this test case is the same as the TRANSPORT CHANNEL RECONFIGURATION FAILURE message as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	Physical channel failure

8.2.4.3.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 2 the UE shall revert to the old configuration in cell 1 and transmit a TRANPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, and it shall set the value "physical channel failure" in IE "failure cause".

After step 3, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st-5th November 2004

Tdoc ⌘T1-041528

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **951** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to SIBs 3 and 4 for 3 MM test cases and 9 GMM test cases for cell selection
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	14/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
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C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	The default parameters broadcast in the SIBs do not allow the UEs to properly select resp. reselect cells as required by the prose.
Summary of change:	⌘	In SIB3 and SIB4 threshold values have to be adjusted to trigger the selection/reselection process.
Consequences if not approved:	⌘	Conformant UEs will fail as test case will not work as intended.

Clauses affected:	⌘	9.4.2.3.4, 9.4.2.4.4, 9.4.7.4, 12.2.1.5b, 12.2.1.5c.4, 12.2.1.5d.4, 12.2.2.7b.4, 12.3.2.6.4, 12.4.1.1a.4, 12.4.2.4.4, 12.4.2.5b.4, 12.9.7b.4

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
		X		Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Affects R99, Rel-4 and Rel-5. This CR aligns the prose to the TTCN.

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Below is a brief summary:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

9.4.2.3.4 Method of test

Initial conditions

- System Simulator:
  - three cells: A, B and C, belonging to different location areas a, b and c. Cell A and B belongs to PLMN1. Cell C belongs to PLMN2.
  - IMSI attach/detach is allowed in both cells;
  - the T3212 time-out value is 1/10 hour in both cells;
  - Sintersearch values for cells A and B are 20 dB.

  NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
- User Equipment:
  - the UE has a valid TMSI(= TMSI1) and CKSN(= CKSN1). It is "idle updated" on cell A.
  - the UE has a list of "equivalent PLMNs" containing PLMN1 and PLMN2.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

9.4.2.4.4 Method of test

Initial conditions

The initial conditions shall be met before each of the different procedures.

- System Simulator:
  - for procedures 1, 2, 3 and 5: Two cells A and B, belonging to different location areas of the same PLMN with LAI a and b. The MCC of that PLMN is the same as that of the HPLMN. The MNC of that PLMN is different from that of the HPLMN;
  - for procedure 4: three cells A, B, C of the same PLMN which is not the HPLMN with 3 different location area codes. Cells should differ in signal strength by 10 dB with cell A being the strongest and cell C the weakest. There should be a 20 dB range between A and C. A should be set to a level of - 40 dBm;
  - IMSI attach/detach is allowed in every cell;
  - the T3212 time-out value is 1/10 hour in every cell,
  - for procedure 2 Sintrasearch values for cells A and B are 20 dB.
- User Equipment:
  - procedures 1, 2, 3 and 5: The UE has valid TMSI, CKSN and CK, IK. It is "idle updated" on cell B;
  - procedure 4: The UE has valid TMSI, CKSN and CK, IK. It is "idle updated" on cell A;
  - the list of "forbidden location areas for roaming" shall be empty (this may be achieved by either removing the USIM or switching the UE OFF then ON or removing the UE power source depending on ICS).

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

9.4.7.4 Method of test

Initial conditions:

- System Simulator:
  - two cells: A and B, with different PLMN Codes (PLMN 1 and PLMN 2 respectively);
  - - Qqualmin values for cells A and B are -16 dB

    NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
- User Equipment:
  - the UE is switched off. The HPLMN is PLMN 3 and no other information about PLMN priorities or forbidden PLMNs is stored in the USIM. The equivalent PLMN list in the mobile station is empty.
  - the UE is "Idle updated" on cell B.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.2.1.5b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6)

All three cells are operating in network operation mode II.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.2.1.5c.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode II (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.2.1.5d.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
All three cells are operating in network operation mode II (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.2.2.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.3.2.6.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode I.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.4.1.1a.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
All three cells are operating in network operation mode II.
The PLMN contains cell C is equivalent to the PLMN that contains cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in all cells.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.4.2.4.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell B in MCC1/MNC2/LAC1/RAC2 (RAI-10), cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2) and cell E in MCC1/MNC3/LAC1/RAC1 (RAI-11).

The PLMN containing Cell E is equivalent to the PLMN that contains Cell A.
All four cells are operating in network operation mode I

The HPLMN is different from MCC1/MNC2.

Sintrasearch and Sintersearch values for cells A, B, D and E are 20 dB.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell E will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.4.2.5b.4 Method of test

Initial condition

System Simulator:

Five cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell E in MCC1/MNC2/LAC1/RAC1 (RAI-5).

All five cells are operating in network operation mode I.

The PLMN contains Cell A, B and D is equivalent to the PLMN that contains Cell E.

Sintrasearch and Sintersearch values for cells A, B, D and E are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell D will be mapped to Cell 3 as found in TS 34.108 clause 6.1.4.2.

iii) Cell E will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

12.9.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

Sintrasearch and Sintersearch values for cells A, B and C are 20 dB.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

<END OF MODIFIED SECTION>

3GPP TSG-T1 Meeting #25
St Paulís Bay, Malta, 1st - 5th November 2004

Tdoc ⌘ T1-041538

CR-Form-v7.1

CHANGE REQUEST

⌘ **34.123-1** **CR** **952** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Clarification in test case 11.3.3.1.
Source:	⌘	NEC Corporation
Work item code:	⌘	TEI
Date:	⌘	04/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	In ëTest procedureí and ëExpected sequenceí UE behaviour after number of retransmitions has been exceeded is not included.
Summary of change:	⌘	Added Step 14a to specify UE behaviour after number of retransmitions has been exceeded.
Consequences if not approved:	⌘	ëTest procedureí and ëExpected sequenceí will remain unclear.

Clauses affected:	⌘	11.3.3.1.4			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Applicable for all previous releases.			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

11.3.3 Abnormal cases

11.3.3.1 T3390 Expiry

11.3.3.1.1 Definition

11.3.3.1.2 Conformance requirement

Expiry of timers

In the UE:

On the first expiry of timer T3390, the UE shall resent the message DEACTIVATE PDP CONTEXT REQUEST and shall reset and restart the timer T3390. This retransmission is repeated four times, i.e. on the fifth expiry of timer T3390, the UE shall release all resources allocated and shall erase the PDP context related data.

Reference

3GPP TS 24.008 clause 6.1.3.4.3 a), case In the UE.

11.3.3.1.3 Test purpose

To test the behaviour of the UE when the SS does not reply to a DEACTIVATE PDP CONTEXT REQUEST message from the UE.

11.3.3.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context
- Method of deactivating a PDP context

Test procedure

A PDP context is activated by the user and accepted by the SS. PDP context deactivation is then requested by the user. The UE shall send a DEACTIVATE PDP CONTEXT REQUEST message five times with T3390 seconds between each message. After that, the UE shall release the PDP context. T3390 seconds after the fifth message the SS shall send a MODIFY PDP CONTEXT REQUEST message for the deactivated context and the UE shall reply with SM STATUS with cause set to #81 'Transaction identifier not known'.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a context activation
1a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call
1b	→		SERVICE REQUEST	
1c	SS			The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			The SS establishes the RAB.
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	UE			Initiate a context deactivation
5	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
6	SS			T3390 seconds
7	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
8	SS			T3390 seconds
9	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
10	SS			T3390 seconds
11	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
12	SS			T3390 seconds
13	→		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
14	SS			Wait T3390 seconds
14a	UE			The UE releases the PDP context and all allocated resources
15	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Try to modify the deactivated context.
16	→		SM STATUS	Cause set to #81

Specific message contents

Steps 2, 5, 7, 9, 11 and 13: TI flag (bit 8) in TI IE is set to 0 (transaction initiated by the UE).

Steps 3, and 15: TI flag in TI IE is set to 1.

Steps 2, 3, 5, 7, 9, 11, 13, and 15: The value of TIO IE (bits 5-7) of the transaction identifier (TI) is the same in these test steps.

11.3.3.1.5 Test requirements

If SS does not respond to the UE initiated PDP context deactivation procedure, the UE shall retransmit ~~a~~ four more DEACTIVATE PDP CONTEXT REQUESTs ~~five~~four ~~times~~, with T3390 timer expiry between the successive messages, before releasing resources allocated to the PDP context and deleting PDP context related data.

<END OF MODIFIED SECTION>

3GPP TSG-T1 Meeting #25
Malta, Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041543

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 953 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections to low priority RRC TCs 8.2.3.21, 8.2.6.26 and 8.2.6.32
Source:	⌘	Ericsson
Work item code:	⌘	TEI
Date:	⌘	19/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	1. In TC 8.2.6.26 and 8.2.6.32 at step 5a, SS should not wait 5s, as SS has to receive the Cell Update message as expected in step 6. 2. In TC 8.2.6.32 there is erroneous text, it should read PHYSICAL CHANNEL RECONFIGURATION COMPLETE instead of RADIO BEARER RELEASE COMPLETE. 3. Conformance requirement out of date.
Summary of change:	⌘	1. The text about that SS waits for 5 s has been removed. 2. Erroneous text corrected. 3. Conformance requirements updated.
Consequences if not approved:	⌘	TC might fail a conformant UE.

Clauses affected:	⌘	8.2.3.21, 8.2.6.26, 8.2.6.32

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Affects Rel 99, Rel4 and Rel5 Ues.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.3.21 Radio Bearer Release from CELL_DCH to CELL_PCH (Frequency band modification): Success

8.2.3.21.1 Definition

8.2.3.21.2 Conformance requirement

If the UE receives:

-a RADIO BEARER RELEASE message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

Ö

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE on the uplink DCCH using AM RLC~~, using the old configuration before the state transition~~.

If after state transition the UE enters CELL_PCH state from CELL_DCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received

reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

~~1> if the UE enters CELL_PCH state from CELL_DCH state, and the received reconfiguration message included the IE "Primary CPICH info, and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info:~~

~~2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";~~

~~2> when the cell update procedure completed successfully:~~

~~3> the procedure ends.~~

Ö

If the new state is CELL_PCH or URA_PCH, ~~,~~ the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

Ö

2> enter the new state (CELL_PCH or URA_PCH, respectively);

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.3.21.3 Test purpose

1. To confirm that the UE transmits RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_DCH to CELL_PCH according to the RADIO BEARER RELEASE message.

3. To confirm that the UE releases the radio access bearer and selects a common physical channel in a different frequency indicated by SS.

8.2.3.21.4 Method of test

Initial Condition

System Simulator: 2 cellsñCells 1 is active and cell 6 is inactive.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.3.21

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec	dBm/ 3.84 MHz	-55	-72	Off	-55

Table 8.2.3.21 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode in cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.21. The SS and UE execute procedure P3 or P5. Next The SS and the UE execute procedure P7 or P9 and then execute procedure P11 or P13. The SS switches its downlink transmission power settings to columns "T1" and then transmits a RADIO BEARER RELEASE message with no IE "Frequency info". The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC and enters CELL_PCH state of cell 6, then the UE shall transmit CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection", to complete the procedure. The SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Note: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1a	←→		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	
1b	←→		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
1c	←→		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.21.
3	←		Void	
4	←		RADIO BEARER RELEASE	Not including new frequency information.
5	→		RADIO BEARER RELEASE COMPLETE	The UE sends this message before it completes state transition. UE sends this message in cell 1.
5a			Void	SS sends the L2 ack on the RADIO BEARER RELEASE COMPLETE message ~~and then waits 5 seconds to allow the UE to read system information before the next step~~. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
6	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
7	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
8				The SS waits for 5 s.
9	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 4)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" or "Non speech to CELL_FACH from CELL_DCH in CS" or "Speech to CELL_FACH from CELL_DCH in CS" in [9] TS 34.108 clause 9, with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	Not Present
Downlink information for each radio link	Not Present

CELL UPDATE (Step 6)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 7)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.2.3.21.5 Test requirement

After step 4 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on uplink DCCH using AM RLC in cell 1.

After step 5 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection" in cell 6.

After step 8 the UE shall be in CELL_PCH state in cell 6.

8.2.6.26 Physical Channel Reconfiguration from CELL_DCH to CELL_PCH (Frequency band modification): Success

8.2.6.26.1 Definition

8.2.6.26.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

Ö

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC~~, using the old configuration before the state transition~~.

If after state transition the UE enters CELL_PCH state from CELL_DCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS5.304.

2> if the UE finds a suitable UTRA cell on the current frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on the current frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

~~1> if the UE enters CELL_PCH state from CELL_DCH state, and the received reconfiguration message included the IE "Primary CPICH info", and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info":~~

~~2> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "cell reselection";~~

~~2> when the cell update procedure completed successfully:~~

~~3> the procedure ends.~~

Ö

If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

Ö

2> enter the new state (CELL_PCH or URA_PCH, respectively);

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.26.3 Test purpose

1. To confirm that the UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_DCH to CELL_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.
3. To confirm that the UE releases a dedicated physical channel and selects a common physical channel in a different frequency.

8.2.6.26.4 Method of test

Initial Condition

System Simulator: 2 cellsñCell 1 is active and cell 6 is inactive

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.6.26

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec	dBm/ 3.84 MHz	-55	-72	Off	-55

Table 8.2.6.26 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.26. The SS and UE execute procedure P5. Next The SS and the UE execute procedure P9 and then execute procedure P13. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters CELL_PCH state. The UE selects cell 6 and initiates CELL UPDATE procedure with IE "Cell update cause" set to "cell reselection". Upon completion of the procedure, the SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1a	←→		SS executes procedure P5 (clause 7.4.2.2.2) specified in TS 34.108.	
1b	←→		SS executes procedure) P9 (clause 7.4.2.4.2) specified in TS 34.108..	
1c	←→		SS executes procedure P13 (clause 7.4.2.6.2) specified in TS 34.108.	
2				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.26.
3			Void	
4	←		PHYSICAL CHANNELRECONFIGURATION	Not including IE" frequency info " and IE "Primary CPICH info"
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE transmit this message in cell 1.
5a			Void	SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE ~~message and then waits 5 seconds to allow the UE to read system information before the next step~~. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
6	→		CELL UPDATE	The IE "Cell update cause" is set to "cell reselection".
7	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
8				The SS waits for 5 s.
9	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	
- UARFCN uplink (Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6

CELL UPDATE (Step 6)

The contents of CELL UPDATE message are identical as "Contents of CELL UPDATE message" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 7)

The contents of CELL UPDATE CONFIRM message are identical as "CELL UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9. with the following exceptions:

Information Element	Value/remark
RRC State Indic	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.2.6.26.5 Test requirement

After step 4 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 1.

After step 5 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection" in cell 6.

After step 8 the UE shall be in CELL_PCH state in cell 6.

8.2.6.32 Physical channel reconfiguration for transition from CELL_DCH to URA_PCH (Frequency band modification): Success

8.2.6.32.1 Definition

8.2.6.32.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

Ö

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC~~, using the old configuration before the state transition~~.

If after state transition the UE enters URA_PCH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304 on that frequency.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> select a suitable UTRA cell according to TS25.304.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to TS25.331 subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in TS25.331 subclause 8.6.3.2.

~~1> if the IE "UTRAN DRX cycle length coefficient" is not included in the same message:~~

~~2> keep the configuration existing before the reception of the message and transmit a failure response message as specified in TS25.331subclause 8.2.2.9~~

1> if the criteria for URA update caused by "URA reselection" according to subclause 8.3.1 is fulfilled after cell selection:

~~1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to TS25.331 subclause 8.3.1 is fulfilled:~~

2> initiate a URA update procedure according to TS25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

Ö

If the new state is is CELL_PCH or URA_PCH, the response message shall be transmitted using the old configuration before the state transition, but the new C-RNTI shall be used if the IE "New C-RNTI" was included in the received reconfiguration message, and the UE shall:

1> when RLC has confirmed the successful transmission of the response message:

Ö

2> enter the new state (CELL_PCH or URA_PCH, respectively);

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.6.32.3 Test purpose

1. To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_DCH to URA_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.
3. To confirm that the UE releases the dedicated physical channel and selects a common physical channel in a different frequency.

8.2.6.32.4 Method of test

Initial Condition

System Simulator: 2 cells ñ Cell 1 is active and cell 6 is inactive

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.2.6.32

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec	dBm/ 3.84 MHz	-55	-72	Off	-55

Table 8.2.6.32 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is in idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.32. SS requests operator to make an outgoing call. The SS and UE execute procedure P5. Next The SS and the UE execute procedure P9 and then execute procedure P13. The SS switches its downlink transmission power settings to columns "T1" and transmits a PHYSICAL CHANNEL RECONFIGURATION message with IE "Frequency info" omitted. The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enter URA_PCH state of cell 6. Upon completion of the procedure, the SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.32. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P5 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure) P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P13 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.32.
6	←		PHYSICAL CHANNEL RECONFIGURATION	Not including IE "Frequency info"
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE transmit this message on the dedicated physical channel in cell 1
8			Void	SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION ~~RADIO BEARER RELEASE~~ COMPLETE message and then waits for 5 s to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
9	←→		CALL C.5	If the test result of C.5 indicates that UE is in URA_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	Not present

8.2.6.32.5 Test requirement

After step 3 the UE shall transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC in cell 1.

After step 8 the UE shall be in URA_PCH state in cell 6.

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘T1-041544

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **954** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Low Priority NAS test case 12.2.1.5a.Proc2
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	06/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘[H	**Section 12.2.1.5a.4.2** The expected sequence at step#4 specifies SS sending ATTACH REJECT with cause "Roaming not allowed in this area". And **3GPP TS 24.008 Section 4.7.3.1.4** specifies: - when UE receive ATTACH REJECT with cause "Roaming not allowed in this areaî state of MM at UE will be *MM IDLE*. Hence, later when the UE is switched on in step#7, an operation mode A UE will perform CS registration. The expected sequence does not include the CS registration step.
Summary of change:	⌘	In Section 12.2.1.5a.4.2 Expected sequence, a new step#8b is introduced for mode A UEs performing CS Registration.
Consequences if not approved:	⌘	Test will incorrectly fail conformant mode A UEs.

Clauses affected:	⌘	12.2.1.5a Test procedure 2			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects Rel-5, Rel-4 and R99 UEs.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

12.2.1.5a PS attach / rejected / roaming not allowed in this location area

12.2.1.5a.1 Definition

12.2.1.5a.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment shall:

   1.1 not perform PS attach when in the same location area.

   1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for roaming' list.

   1.4 perform PS attach when a new location area is entered.

   1.5 Periodically search for its HPLMN.

2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

3) The UE shall be capable of storing at least 10 entries in the list of 'Forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5a.3 Test purpose

Test purpose 1

To test that on receipt of a rejection using the 'roaming not allowed in this location area' cause code, the UE ceases trying to attach on that location area. Successful PS attach procedure is possible in other location areas.

Test purpose 2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

Test purpose 3

To test that at least 6 entries can be held in the list of 'forbidden location areas for roaming' (the requirement in 3GPP TS 24.008 is to store at least 10 entries. This is not fully tested by the third procedure).

Test purpose 4

To test that if a cell of the Home PLMN is available then the UE returns to it in preference to any other available cell.

12.2.1.5a.4 Method of test

12.2.1.5a.4.1 Test procedure 1

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in

MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN) and cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN).

All three cells are operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. A new attempt for a PS attach is not possible. Successful PS attach / detach procedures are performed in another location area. A new attempt for a PS attach is performed in the 1st location area. This attempt shall not succeed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 19.
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
5	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
10	UE			The UE initiates an attach automatically, by MMI or by AT command.
10a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
11	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c		SS		The SS starts integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-6
13	->		ATTACH COMPLETE	
13a		SS		The SS releases the RRC connection.
14	UE			The UE initiates a PS detach (without power off) by MMI or by AT command .
14a		SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
15	->		DETACH REQUEST	Detach type = 'normal detach, PS detach'
16	<-		DETACH ACCEPT	
16a		SS		The SS releases the RRC connection.

17	SS		The following messages are sent and shall be received on cell C. Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
18	UE		Cell C is preferred by the UE.
19	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds). The UE is switched off or power is removed (see ICS)
20	UE		UE is switched off.
21	SS		Set the cell type of cell C to the "Non-Suitable cell". (see note)
22	UE		The UE is set in UE operation mode A if supported (see ICS) and the test is repeated from step 2 to step 20.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

12.2.1.5a.4.2 Test procedure 2

Initial condition

System Simulator:

One cell in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN) operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach updating with the cause value 'Roaming not allowed in this area'. The UE is switched off for 10 s and switched on again. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

If USIM removal is possible without switching off: The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. The USIM is removed and inserted in the UE. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
2b	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
4	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
5	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
5a	SS			The SS releases the RRC connection.
6	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
7	UE			The UE is powered up or switched on and initiates an attach (see ICS).
8				
8a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
8b	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
9	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
9a	<-		AUTHENTICATION AND CIPHERING REQUEST	
9b	->		AUTHENTICATION AND CIPHERING RESPONSE	
9c	SS			The SS starts integrity protection.
10	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
11	->		ATTACH COMPLETE	
11a	SS			The SS releases the RRC connection.
12	UE			The UE is switched off or power is removed (see ICS).
12a	SS			SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
12b			Void	
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

12.2.1.5a.4.3 Test procedure 3

Initial condition

System Simulator:

Six cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-3, Not HPLMN), cell C in MCC2/MNC1/LAC3/RAC1 (Not HPLMN), cell D in MCC2/MNC1/LAC4/RAC1 (Not HPLMN), cell E in MCC2/MNC1/LAC5/RAC1 (Not HPLMN), cell F in MCC2/MNC1/LAC6/RAC1 (Not HPLMN).
All six cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. This is done for 6 different location areas. Then the SS checks that the UE does not attempt to perform an attach procedure on the non-allowed location areas.

Different types of UE may use different methods to periodically clear the list of forbidden areas (e.g. every day at 12am) for roaming. If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Non-Suitable cell". Set the cell type of cell F to the "Non-Suitable cell". (see note)
2	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
5		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	UE		Registration on CS	See TS 34.108 This is applied only in case of UE operation mode A. Parameter mobile identity is IMSI.
10	UE			The UE initiates an attach automatically, by MMI or by AT command.
10a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
11		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
12		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
13	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell C.
14		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
15	UE			Cell C is preferred by the UE.

Step	Direction		Message	Comments
	UE	SS		
16	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
17a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
18	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
19	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
20	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell D.
21a	SS			The SS releases the RRC connection.
21	SS			Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
22	UE			Cell D is preferred by the UE.
23	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
24	UE			The UE initiates an attach automatically, by MMI or by AT command.
24a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
25	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
26	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
27	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
27a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
				The following messages are sent and shall be received on cell E.
28	SS			Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Serving cell". (see note)
29	UE			Cell E is preferred by the UE.
30	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
31	UE			The UE initiates an attach automatically, by MMI or by AT command.
31a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
32	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
33	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
34	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
34a	SS			The SS releases the RRC connection.
				The following messages are sent and shall be received on cell F.

Step	Direction		Message	Comments
	UE	SS		
35		SS		Set the cell type of cell E to the "Non-Suitable cell". Set the cell type of cell F to the "Serving cell". (see note)
36	UE			Cell F is preferred by the UE.
37	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
38	UE			The UE initiates an attach automatically, by MMI or by AT command.
38a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
39	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
40	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
41	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
41a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell E.
42		SS		Set the cell type of cell E to the "Serving cell". Set the cell type of cell F to the "Non-Suitable cell". (see note)
43		SS		Cell E is preferred by the UE.
44	UE			The UE initiates an attach automatically, by MMI or by AT command.
45	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
46		SS		Set the cell type of cell C to the "Serving cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
47		SS		Cell C is preferred by the UE.
48	UE			The UE initiates an attach automatically, by MMI or by AT command.
49	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell A.
50		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
51		SS		Cell A will be preferred by the UE.
52	UE			The UE initiates an attach automatically, by MMI or by AT command.
53	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

12.2.1.5a.4.4 Test procedure4

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (not HPLMN, RAI-2) and cell B in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1).

Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area A second cell belonging to the HPLMN is activated. It is checked that the UE returns to its HPLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
5	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
9	UE			The UE initiates an attach automatically, by MMI or by AT command.
9a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
10	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
10a	<-		AUTHENTICATION AND CIPHERING REQUEST	
10b	->		AUTHENTICATION AND CIPHERING RESPONSE	
10c		SS		The SS starts integrity protection.
11	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
12	->		ATTACH COMPLETE	
12a	->			The SS releases the RRC connection.
13	UE			The UE is switched off or power is removed (see ICS).
13a		SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
13b			Void	
14	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

15	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.1.5a.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform the PS attach procedure.

At step11, when the new location area is entered, UE shall:

- perform the PS attach procedure

At step19, when the rejected location area is entered, UE shall

- not perform PS attach procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform PS attach procedure.

At step9, when the UE is switched off or USIM is replaced, UE shall:

- perform the PS attach procedure.

Test requirements for Test procedure3

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, 13, 20, 27, 34 and 41, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform PS attach procedure.

At step11, 18, 25, 32 and 39 , UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step45, 49 and 53, UE shall:

- not perform PS attach procedure.

Test requirements for Test procedure4

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform PS attach procedure.

At step10, when a new location area is entered, UE shall:

- perform the PS attach procedure.

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Malta, 1st ñ 5th Nov, 2004

Tdoc ⌘T1-041545

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **955** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to contents of SIB 11 and Cell Update in testcase 8.4.1.3
Source:	⌘	Anite
Work item code:	⌘	N/A
Date:	⌘	28/08/04
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	1. Approved TTCN for the testcase 8.4.1.3 does not broadcast SIB12. But the default contents of SIB 11 indicate that the SIB12 is being broadcast. 2. The contents of CellUpdate do not indicate the presence of RB Timer Indicator which is a mandatory IE. 3. SIB11contents are not consistent with IE naming in TS 25.331
Summary of change:	⌘	1. SIB12 Indicator in SIB11 is set to FALSE. 2. Contents of Cell Update changed to include appropriate value for IE, RB Timer Indicator 3. SIB11 contents corrected as per 25.331 (name of IE ìReporting Quantityî changed to ìMeasurement Quantityî)
Consequences if not approved:	⌘	Prose and TTCN implementation will not be aligned.

Clauses affected:	⌘	8.4.1.3.4
Other specs affected:	⌘	Y N ☐ X Other core specifications ☐ X Test specifications ☐ X O&M Specifications
Other comments:	⌘	Affects Rel-5, Rel-4 and R99 UEs

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

MEASUREMENT REPORT (Step 10)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- UARFCN	Check to see if set to the UARFCN of the frequency for cell 4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Additional Measured Results	Check to see if it is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Inter-frequency measurement event results"
- Inter-frequency event identity	Check to see if this IE is set to "2c"
- Inter-frequency cells	
- Frequency info	
- UARFCN	Check to see if set to the UARFCN of the frequency for cell 4
- Non frequency related measurement event results	
- CHOICE Mode	Check to see if set to "TDD"
- Primary CCPCH info	Check to see if set to the same as cell 4

8.4.1.2A.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages pertaining to the measurement of PCCPCH RSCP of cell 4.

After step 7 the UE shall transmit MEASUREMENT REPORT messages on uplink DCCH, reporting cell 4's PCCPCH RSCP value at periodic time interval of 16 seconds in "inter-frequency cell measurement results" IE.

After step 9 the UE shall transmit only 1 MEASUREMENT REPORT message on the uplink DCCH. In this message, IE "inter-frequency cell measured results" shall be absent.

8.4.1.3 Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_FACH state (FDD)

8.4.1.3.1 Definition

8.4.1.3.2 Conformance requirement

Upon transition from idle mode to CELL_FACH state, the UE shall:

1> begin or continue monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11).

In CELL_FACH state, the UE shall:

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

1> retrieve each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT_IDENTITY;

1> if the IE "measurement validity" for a measurement has been assigned the value "CELL_DCH:

2> resume the measurement reporting.

1> if no intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> continue monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info list" in System Information Block type 12 (or System Information Block type 11);

2> if the IE "intra-frequency measurement reporting criteria" was included in System Information Block type 12 (or System Information Block type 11):

3> send the MEASUREMENT REPORT message when reporting criteria in IE "Reporting information for state CELL_DCH" are fulfilled.

Reference

3GPP TS 25.331, clause 8.4.1.9.1, 8.4.1.7.1, 8.4.2.2.

8.4.1.3.3 Test Purpose

To confirm that the UE begins or continues to monitor cells listed in IE "intra-frequency cell info list" of System Information Block type 11 or 12 messages after it has entered CELL_FACH state from idle mode.

To confirm that the UE applies the reporting criteria stated in "intra-frequency measurement reporting criteria" IE in System Information Block Type 11 or 12 in a subsequent transition to CELL_DCH state.

To confirm that the UE reports measured results on RACH messages, if it receives IE "Intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" from System Information Block Type 11 or 12 upon a transition from idle mode to CELL_FACH state.

8.4.1.3.4 Method of test

Initial Condition

System Simulator: 2 cells. Cell 1 and cell 2 are active.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.3-1 illustrates the downlink power to be applied for the 2 cells in this test case.

Table 8.4.1.3-1

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel Number		Ch. 1	Ch. 1
CPICH Ec	dBm/ 3.84 MHz	-60	-67

The UE is initially in idle mode and camps on cell 1. The System Information Block type 11 are modified compared to the default settings. In the System Information Block type 11 messages, reporting of CPICH RSCP is also required for intra-frequency reporting when transmitting RACH messages on cell 1.

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute procedure P6. Next SS and UE shall execute procedure P10. Then SS and UE shall execute procedure P14. SS starts timer T305 and waits until timer T305 expires, the UE shall send a CELL UPDATE message on the CCCH which includes the measured value of cell 1's CPICH RSCP in IE "Measured results on RACH". SS then replies with CELL UPDATE CONFIRM message on the downlink DCCH, without changing the physical channel resources.

SS transmits PHYSICAL CHANNEL RECONFIGURATION message, and allocates dedicated physical channels to the UE. The UE shall transit to CELL_DCH state and then send a MEASUREMENT REPORT message, correctly stating the measurement identity. The measurement identity indicated shall match the value that was previously broadcast on System Information Block type 11 messages when the UE was still in idle mode. The IE "Measured results" in the MEASUREMENT REPORT messages shall contain measured values of cell 2's CPICH RSCP.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 1, System Information Block type 11	The UE is in idle mode and camps onto cell 1. System Information Block type 1 and 11 to be transmitted are different from the default settings (see specific message contents)
2	↔		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	SS prompts the test operator to make an outgoing call.
3	↔		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5			Void	
6				SS monitors the uplink DCCH to confirm that no MEASUREMENT REPORT messages are detected. SS waits for 5 minutes (for the expiry of T305 timer).
7	→		CELL UPDATE	This message shall contain IE "Measured results on RACH" reporting the measured CPICH RSCP for cell 1.
8	←		CELL UPDATE CONFIRM	SS does not change the physical channel configurations.
9	←		PHYSICAL CHANNEL RECONFIGURATION	SS assigns dedicated physical resources.
10	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall transit to CELL_DCH state.
11	→		MEASUREMENT REPORT	UE shall begin to report cell 2's CPICH RSCP value periodically at 16 seconds interval. The measurement identity shall match the one that is broadcast for use in CELL_DCH in SIB11 in step 1.

Specific Message Content

System Information Block type 1 (Step 1)

Use the same System Information Block Type 1 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/Remarks
UE Timers and constants in connected mode - T305	5 minutes.
- T312	2

System Information Block type 11 (Step 1)

Use the same System Information Block Type 11 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
SIB12 Indicator	FALSE
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	
- $Qoffset1_{s,n}$	Not Present (Default is 0 dB)
- $Qoffset2_{s,n}$	Not Present
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin	-20dB
- Qrxlevmin	-115dBm
- Cells for measurement	Not Present
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- ~~Reporting~~ Measurement quantity	CPICH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present

- Triggering condition 2	Monitored set cells
- Reporting Range Constant	14 dB
- Cells forbidden to affect reporting range	Not Present
- W	0.0
- Hysteresis	1.0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	0
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2

CELL UPDATE (Step 7)

Information Element	Value/remark
U-RNTI	Check to see if set to same U-RNTI value assigned in the execution of procedure P6.
START list	Checked to see if this IE is present
AM_RLC error indication(RB2, RB3 or RB4)	FALSE
AM_RLC error indication(RB>4)	FALSE
Cell update cause	Check to see if set to 'Periodical cell update'
Failure cause	Check to see if this IE is absent
RB timer indicator	
- T314 expired	Checked to see if it is set to 'FALSE'
- T315 expired	Checked to see if it is set to 'FALSE'
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to 'CPICH RSCP'
- CPICH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

PHYSICAL CHANNEL RECONFIGURATION (Step 9)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_FACH".

MEASUREMENT REPORT (Step 11)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is present
- CPICH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH Info	Check to see if it's the same code for cell 2
- Primary Scrambling Code	Check to see if this IE is absent
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if set to "1a"
- Cell measurement event results	
- CHOICE Mode	Check to see if set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the scrambling code of cell 2

8.4.1.3.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages on the uplink DCCH.

After step 6 the UE shall initiate cell update procedure by transmitting CELL UPDATE message on CCCH. In this message, IE "cell update cause" shall be set to "periodic cell update". It shall include IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP.

After step 10 the UE shall transmit MEASUREMENT REPORT messages at 16 seconds interval. In these messages, cell 2's CPICH RSCP value shall be reported in IE "Measured results". The IE "measurement identity" in this message shall match the IE "Intra-frequency measurement identity" found in System Information Block type 11 messages transmitted in step 1. The MEASUREMENT REPORT messsages shall also contain IE "Event results", indicating that intra-frequency event "1a" has triggered in the UE.

8.4.1.3A Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_FACH state (TDD)

8.4.1.3A.1 Definition

8.4.1.3A.2 Conformance requirement

The UE shall obey the follow rules for different measurement types after transiting from idle mode to CELL_FACH state:

Upon transition from idle mode to CELL_FACH state, the UE shall:

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Malta, 1st - 5th Nov 2004

Tdoc ⌘*T1-041546*

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **956** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Revisions to Package 3 measurement test cases 8.4.1.34, 8.4.1.35 and 8.4.1.36
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	17/08/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘

Clause 8.4.1.34

A) At STEP 7 of the expected test sequence, the wait time 0.8s for receiving the first Measurement Report is not enough.

According to **25.133 section 8.1.2.5.4**:

The measurement reporting delay is defined as (2*TMeasurement Period). Thus the wait timer calculation should be (2 * TMeasurement Period + Time to trigger event),

where:

As per **25.133 section 8.1.2.5**, TMeasurement Period is 480ms and

in Measurement Control message for test case 8.4.1.34 time to trigger event is 60 ms.

As per the above section references the calculated timer for first Measurement Report is: (2 * 480ms + 60 ms) = 1020ms

B) At STEP 9 of the expected test sequence, the wait time 0.8 s for receiving the second Measurement Report is not enough.

As per **25.133 table 8.7** : ìThe worst-case times for identification of one previously not identified GSM cellî

For a UE requiring compressed mode gap patterns (pattern 2) the time

required for initial BSIC verification of the 3rd GSM cell is 5.28s.

C) Error Correction in Initial Condition:

In the ìTest Procedureî Table 8.4.1.34.4-1 contains parameters for the 3 GSM Cells at various times during the test case execution. It does not contain parameters for the one UTRAN cell.

However, the ìInitial Conditionî section refers to the table as containing initial configurations for all of the 4 cells.

Clause 8.4.1.35

D) Error Correction in Initial Condition:

In the ìTest Procedureî Table 8.4.1.35.4-1 contains parameters for the 2 GSM Cells at various times during the test case execution. It does not contain parameters for the one UTRAN cell.

However, the ìInitial Conditionî section refers to the table as containing initial configurations for 4 cells.

Clause 8.4.1.36

E) Error Correction in Initial Condition:

In the ìTest Procedureî Table 8.4.1.36.4-1 contains parameters for the 2 GSM Cells at various times during the test case execution. It does not contain parameters for the one UTRAN cell.

However, the ìInitial Conditionî section refers to the table as containing initial configurations for 4 cells.

NOTE : This is an Additional Change to that contained in approved prose CR T1-041012 for test case 8.4.1.36.

Summary of change: ⌘

Clause 8.4.1.34

A) At Step 7 for receiving the first meaurement report, the wait time is changed to 1020ms from 0.8s.

B) At Step 9 for receiving the second meaurement report, the wait time is changed to 5.8s (which includes 10% tolerance) from 0.8s.

C) Corrected the Initial Condition to refer to the correct number of GSM cells shown in the table

Clause 8.4.1.35

D) Corrected the Initial Condition to refer to the correct number of GSM cells shown in the table

Clause 8.4.1.36

E) Corrected the Initial Condition to refer to the correct number of GSM cells shown in the table

Consequences if ⌘ Inconsistency will remain between the Test Specification prose and the Core

not approved:	Specifications and may result in failure of a conformant UE.

Clauses affected:	⌘	8.4.1.34, 8.4.1.35 and 8.4.1.36			
Other specs Affected:	⌘	Y / N	Other core specifications	⌘	
			Test specifications		
			O&M Specifications		
Other comments:	⌘	Affects Rel-5, Rel-4 and R99 UEs			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

8.4.1.34 Measurement Control and Report: Inter-RAT measurement, event 3b

8.4.1.34.1 Definition

8.4.1.34.2 Conformance requirement

If the IE "Inter-RAT cell info list" is received in a MEASUREMENT CONTROL message, the UE shall update the variable CELL_INFO_LIST accordingly and in the following order. The UE shall:

- if the IE "Removed Inter-RAT cells" is received, at the position indicated by the IE "Inter-RAT cell id":
  - clear the cell information stored in the variable CELL_INFO_LIST; and
  - mark the position "vacant";
- if the IE "New Inter-RAT cells" is received, for each cell, and in the same order as the cells appear in the IE:
  - update the variable CELL_INFO_LIST as follows:
    - if the IE "Inter-RAT cell id" is received:
      - store received cell information at this position in the Inter-RAT cell info list in the variable CELL_INFO_LIST, possibly overwriting any existing information in this position; and
      - mark the position "occupied";
    - if the IE "Inter-RAT cell id" is not received:
      - store the received cell information at the first vacant position in ascending order in the Inter-RAT cell info list in the variable CELL_INFO_LIST; and
  - mark the position as "occupied";

When event 3b is configured in the UE within a measurement, the UE shall:

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

3> if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED_3B_EVENT:

4> store the inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED_3B_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (worst one first);

5> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2 , not taking into account the cell individual offset;

2> if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED_3B_EVENT:

3> remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED_3B_EVENT.

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:

3> if any of those BCCH ARFCN is not stored into the variable TRIGGERED_3B_EVENT:

4> store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED_3B_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3b", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (worst one first);

5> set the IE "measured results" and the IE "additional measured results" according to 8.4.2, not taking into account the cell individual offset;

2> if equation 2 below is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED_3B_EVENT:

3> remove that BCCH ARFCN from the variable TRIGGERED_3B_EVENT.

Triggering condition:

Equation 1:

$$M_{Other\ \ RAT} + CIO_{Other\ \ RAT} \leq T_{Other\ \ RAT} - H_{3b} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Other\ RAT}}$ is the measurement quantity for the cell of the other system.

$\boldsymbol{CIO_{Other\ RAT}}$ is the cell individual offset for the cell of the other system.

$\boldsymbol{T_{Other\ RAT}}$ is the absolute threshold that applies for the other system in that measurement.

$\boldsymbol{H_{3b}}$ is the hysteresis parameter for event 3b.

Leaving triggered state condition:

Equation 2:

$$M_{Other\ \ RAT} + CIO_{Other\ \ RAT} > T_{Other\ \ RAT} + H_{3b} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Other\ RAT}}$ is the measurement quantity for the cell of the other system. $\boldsymbol{M_{Other\ RAT}}$ is expressed in dBm.

$\boldsymbol{CIO_{Other\ RAT}}$ is the cell individual offset for the cell of the other system.

$\boldsymbol{T_{Other\ RAT}}$ is the absolute threshold that applies for the other system in that measurement.

$\boldsymbol{H_{3b}}$ is the hysteresis parameter for event 3b.

Reference

3GPP TS 25.331 clause 8.6.7.3, 14.3.1.2

8.4.1.34.3 Test Purpose

1 To confirm that the UE sends MEASUREMENT REPORT message if event 3b is configured, if the estimated quality of the other system is below a given threshold.

2 To confirm that the hysteresis and time to trigger behaviours for event 3b are correctly implemented. To confirm that the UE updates the list of inter-RAT cells it stores according to what is ordered in the MEASUREMENT CONTROL messages received from UTRAN.

8.4.1.34.4 Method of test

Initial Condition

System simulator: 1 UTRAN FDD cell and 3 GSM cells. The initial configurations of the ~~4~~3 GSM cells in the SS shall follow the values indicated in the column marked T0. The table is found in "Test procedure".

UE: CELL_DCH state, state 6-9 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test procedure

Table 8.4.1.34.4-1

Parameter	Unit	Cell 1 (GSM)		Cell 2 (GSM)		Cell 3 (GSM)	
		T0	T1	T0	T1	T0	T1
Test Channel	#	GSM Ch.1		GSM Ch.2		GSM Ch.3	
BCCH ARFCN	#	1		7		39	
CELL identity	#	0		1		2	
BSIC	#	BSIC 1		BSIC 2		BSIC 3	
RF Signal Level	dBm	-70	-90	-70	-70	-90	-90

The table above illustrate the downlink power to be applied for the cells at various instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1" indicates the values to be applied subsequently.

The UE is initially in CELL_DCH, state 6-9 as specified in clause 7.4 of TS 34.108. UTRA cell 1 is the only cell in the active set of the UE. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Three compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message to the UE, to set up inter-RAT measurements. Event 3b is set up in this message, and if the UE requires compressed mode (refer ICS/IXIT), compressed mode is activated. The monitored GSM cells at measurement establishment are GSM cells 1 and 2.

At instant T1, the RF signal strength for GSM cell 1 drops as described in table 8.4.1.34.4-1.

When the MEASUREMENT REPORT has been received by the SS, a MEASUREMENT CONTROL message is sent to the UE, to add GSM cell 3 to the monitored GSM cells.

A second MEASUREMENT REPORT triggered by event 3b shall be received shortly after by the SS. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_DCH state in the cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 4.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS configures event 3b in the UE. If the UE requires compressed mode (refer ICS/IXIT), compressed mode is started.
5				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in tables 8.4.1.34.4-1.
7	→		MEASUREMENT REPORT	After about After about ~~0.8~~ 1020ms, the UE sends a MEASUREMENT REPORT to SS triggered by event 3b.
8	←		MEASUREMENT CONTROL	SS adds GSM cell 3 to the list of the monitored GSM cells.
9	→		MEASUREMENT REPORT	After about ~~0.8~~ 5.8s, the UE sends a MEASUREMENT REPORT to SS triggered by event 3b.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type in Annex A titled "Speech in CS", with the following exceptions:

Information Element	Value/remark
Downlink information common for all radio links	
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM Carrier RSSI Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	12
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TGPSI	2
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM BSIC identification
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	8
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	66
- T Reconfirm abort	Not Present
- TGPSI	3
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM BSIC re-confirmation
- TGPRC	Infinity

- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	8
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	5 s

MEASUREMENT CONTROL (Step 4)

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	MaxCellMeas=2
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	DCS 1800 band used
- BCCH ARFCN	1
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	DCS 1800 band used
- BCCH ARFCN	7
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	<MaxMeasEvent>=1
- Inter-RAT event identity	3b
- Threshold own system	Not included
- W	Not included
- Threshold other system	-80
- Hysteresis	2
- Time to Trigger	60 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	3
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (250 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	<MaxTGPS>=3
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (252 ñ TTI/10msec))mod 256
- TGPSI	2
- TGPS status flag	Activate

- TGCFN	(Current CFN + (254 ñ TTI/10msec))mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(Current CFN + (250 ñ TTI/10msec))mod 256

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	Check that measurement results for two GSM cells are included
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.
CHOICE BSIC	Check it is set to verified BSIC
- inter-RAT cell id	Check that it is set to 1
- Observed time difference to GSM cell	Check that the IE is not included
- GSM carrier RSSI	Check that measurement result is reasonable
CHOICE BSIC	Verified BSIC
- inter-RAT cell id	Check that it is set to 0.
- Observed time difference to GSM cell	Check that the IE is not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that the IE is included
- CHOICE event result	Check that this is set to inter-RAT measurement event results
- Inter-RAT event identity	Check that this is set to 3b
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1
- CHOICE BSIC	Check that this is set to verified BSIC
- Inter-RAT cell id	Check that this is set to 0.

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Not present
- Periodic Reporting / Event Trigger Reporting Mode	Not present
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove no inter-RAT cells
New inter-RAT cells (1 to <MaxCellMeas>)	MaxCellMeas=1
- inter-RAT cell id	Not present
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC3
- Band indicator	DCS 1800 band used
- BCCH ARFCN	39
- Cell for measurement	Not present
- inter-RAT measurement quantity	Not present
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	Not Present
Physical channel information elements	Not present

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	Check that measurement results for three GSM cells are included
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.
CHOICE BSIC	Check it is set to verified BSIC
- inter-RAT cell id	Check that it is set to 1
- Observed time difference to GSM cell	Check that the IE is not included
- GSM carrier RSSI	Check that measurement result is reasonable
CHOICE BSIC	Verified BSIC
- inter-RAT cell id	Check that is set to 0 or 2.
- Observed time difference to GSM cell	Check that the IE is not present
- GSM carrier RSSI	Check that measurement result is reasonable
CHOICE BSIC	Verified BSIC
- inter-RAT cell id	Check that is set to 0 or 2 and that this inter-RAT cell id is different from the two previous inter-RAT cell id.
- Observed time difference to GSM cell	Check that the IE is not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that the IE is included
- CHOICE event result	Check that this is set to inter-RAT measurement event results
- Inter-RAT event identity	Check that this is set to 3b
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1
- CHOICE BSIC	Check that this is set to verified BSIC
- Inter-RAT cell id	Check that this is set to 2.

8.4.1.34.5 Test requirement

Between instants T0 and T1, the UE shall not send any MEASUREMENT REPORT message to the SS.

Event 3b shall be triggered in the UE (i.e. the transmission of the first MEASUREMENT REPORT message shall begin) after instant T1.

After the reception by the UE of the second MEASUREMENT CONTROL message, the UE shall begin to transmit the second MEASUREMENT REPORT message (since the signal strength for GSM cell 3 is below the threshold for triggering event 3b).

<< END OF MODIFIED SECTION >>

<< START OF MODIFIED SECTION >>

8.4.1.35 Measurement Control and Report: Inter-RAT measurement, event 3c

8.4.1.35.1 Definition

8.4.1.35.2 Conformance requirement

When event 3c is configured in the UE within a measurement, the UE shall:

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one or several GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

3> if the inter-RAT cell id of any of those GSM cell is not stored in the variable TRIGGERED_3C_EVENT:

4> store the Inter-RAT cell ids of the GSM cells that triggered the event and that were not previously stored in the variable TRIGGERED_3C_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cells that triggered the event (best one first);

5> set the IE "measured results" and the IE "additional measured results" according to 8.4.2, not taking into account the cell individual offset;

2> if equation 2 below is fulfilled for a GSM cell whose inter-RAT cell id is stored in the variable TRIGGERED_3C_EVENT:

3> remove the inter-RAT cell id of that GSM cell from the variable TRIGGERED_3C_EVENT.

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one or several of the BCCH ARFCNs considered in that inter-RAT measurement:

3> if any of those BCCH ARFCN is not stored into the variable TRIGGERED_3C_EVENT:

4> store the BCCH ARFCNs that triggered the event and that were not previously stored in the variable TRIGGERED_3C_EVENT into that variable;

4> send a measurement report with IEs set as below:

5> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3c", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to BCCH ARFCNs that triggered the event (best one first);

5> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

2> if equation 2 is fulfilled for a BCCH ARFCN that is stored in the variable TRIGGERED_3C_EVENT:

3> remove that BCCH ARFCN from the variable TRIGGERED_3C_EVENT.

Triggering condition:

Equation 1:

$$M_{Other\ \ RAT} + CIO_{Other\ \ RAT} \geq T_{Other\ \ RAT} + H_{3c} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Other\ RAT}}$ is the measurement quantity for the cell of the other system. $\boldsymbol{M_{Other\ RAT}}$ is expressed in dBm.

$\boldsymbol{CIO_{Other\ RAT}}$ is the cell individual offset for the cell of the other system.

$\boldsymbol{T_{Other\ RAT}}$ is the absolute threshold that applies for the other system in that measurement.

$\boldsymbol{H_{3c}}$ is the hysteresis parameter for event 3c.

Leaving triggered state condition:

Equation 2:

$$M_{Other\ \ RAT} + CIO_{Other\ \ RAT} < T_{Other\ \ RAT} - H_{3c} / 2$$

The variables in the formula are defined as follows:

$\boldsymbol{M_{Other\ RAT}}$ is the measurement quantity for the cell of the other system. $\boldsymbol{M_{Other\ RAT}}$ is expressed in dBm.

$\boldsymbol{CIO_{Other\ RAT}}$ is the cell individual offset for the cell of the other system.

$\boldsymbol{T_{Other\ RAT}}$ is the absolute threshold that applies for the other system in that measurement.

$\boldsymbol{H_{3c}}$ is the hysteresis parameter for event 3c.

Reference

3GPP TS 25.331 clauses 14.3.1.3, 8.4.2.2.

8.4.1.35.3 Test Purpose

1 To confirm that the UE sends MEASUREMENT REPORT message if event 3c is configured, and if the quality of the other system becomes better than the given threshold for event 3c.

2 To confirm that no other UE MEASUREMENT REPORT message is sent by the UE for a cell that has already triggered event 3c as long as the hysteresis condition for triggering once again event 3c has not been fulfilled.

8.4.1.35.4 Method of test

Initial Condition

System simulator: 1 UTRAN FDD cell and 2 GSM cells. The initial configurations of the 4 2 GSM cells in the SS shall follow the values indicated in the column marked T0. The table is found in "Test procedure".

UE: CELL_DCH state, state 6-9 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test procedure

Table 8.4.1.35.4-1

Parameter	Unit	Cell 1 (GSM)				Cell 2 (GSM)			
		T0	T1	T2	T3	T0	T1	T2	T3
Test Channel	#	GSM Ch.1				GSM Ch.2			
BCCH ARFCN	#	1				7			
CELL identity	#	0				1			
BSIC	#	BSIC 1				BSIC 2			
RF Signal Level	dBm	-90	-75	-80	-75	-75	-75	-75	-75

The table above illustrate the downlink power to be applied for the two cells at various instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1", "T2" and "T3" indicate the values to be applied subsequently.

The UE is initially in CELL_DCH, state 6-9 as specified in clause 7.4 of TS 34.108. UTRA cell 1 is the only cell in the active set of the UE. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Three compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message to the UE, to set up inter-RAT measurements. Event 3c is set up in this message, and if the UE requires compressed mode (refer ICS/IXIT), compressed mode is activated.

At instant T1, the RF signal strength for GSM cell 1 increases as described in table 8.4.1.35.4-1.

At instant T2, the RF signal strength for GSM cell 1 drops as described in table 8.4.1.35.4-1, and at instant T3, it increases again to its previous level. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_DCH state in the cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 4.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS configures event 3c in the UE. If the UE requires compressed mode (refer ICS/IXIT), compressed mode is started.
5				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.35.4-1.
7	→		MEASUREMENT REPORT	After about 0.9 s, the UE sends a MEASUREMENT REPORT to SS triggered by event 3b.
8				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.35.4-1.
9				SS re-adjusts the downlink transmission power settings according to columns "T3" in table 8.4.1.35.4-1.
10				SS waits for approximately 10 seconds and verifies that no MEASUREMENT REPORT messages are detected on uplink DCCH.
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type in Annex A titled "Speech in CS", with the following exceptions:

Information Element	Value/remark
Downlink information common for all radio links	
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM Carrier RSSI Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	12
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TGPSI	2
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM BSIC identification
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	8
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	66
- T Reconfirm abort	Not Present
- TGPSI	3
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM BSIC re-confirmation
- TGPRC	Infinity

- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	8
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	5 s

MEASUREMENT CONTROL (Step 4)

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	MaxCellMeas=2
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	10
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	DCS 1800 band used
- BCCH ARFCN	1
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	-3
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	DCS 1800 band used
- BCCH ARFCN	7
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	<MaxMeasEvent>=1
- Inter-RAT event identity	3c

- Threshold own system	Not included
- W	Not included
- Threshold other system	-74
- Hysteresis	5
- Time to Trigger	100 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (250 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	<MaxTGPS>=3
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (252 ñ TTI/10msec))mod 256
- TGPSI	2
- TGPS status flag	Activate
- TGCFN	(Current CFN + (254 ñ TTI/10msec))mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(Current CFN + (250 ñ TTI/10msec))mod 256

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	Check that measurement results for two GSM cells are included
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.
CHOICE BSIC	Check it is set to verified BSIC
- inter-RAT cell id	Check that it is set to either 0 or 1
- Observed time difference to GSM cell	Check that the IE is not included
- GSM carrier RSSI	Check that measurement result is reasonable
CHOICE BSIC	Verified BSIC
- inter-RAT cell id	Check that is set to 1 if the previous inter-RAT cell id was set to 0 or to 0 if the previous cell if was set to 1.
- Observed time difference to GSM cell	Check that the IE is not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that the IE is included
- CHOICE event result	Check that this is set to inter-RAT measurement event results
- Inter-RAT event identity	Check that this is set to 3c
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1
- CHOICE BSIC	Check that this is set to verified BSIC
- Inter-RAT cell id	Check that this is set to 0.

8.4.1.35.4 Test requirement

After instant T1, since the cell individual offset for GSM cell 1 is +10 dB, event 3c shall be triggered in the UE, i.e the UE shall begin to transmit a MEASUREMENT REPORT to the SS. Note that GSM cell 2 has not triggered event 3c

even though the RF signal strength for GSM cell 2 is the same as for cell 1, because the cell individual offset for GSM cell 2 is -3 dB.

After instant T2, no MEASUREMENT REPORT shall be received from the UE, since GSM cell 1 has already triggered event 3c, and since the RF signal strength has not dropped enough for the leaving condition to be met.

<< END OF MODIFIED SECTION >>

<< START OF MODIFIED SECTION >>

8.4.1.36 Measurement Control and Report: Inter-RAT measurement, event 3d

8.4.1.36.1 Definition

8.4.1.36.2 Conformance requirement

When event 3d is configured in the UE within a measurement, the UE shall:

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "required":

2> when the measurement is initiated or resumed:

3> store in the variable BEST_CELL_3D_EVENT the Inter-RAT cell id of the GSM cell that has the best measured quantity among the GSM cells that match any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement

3> send a measurement report with IE set as below:

4> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cell that is stored in the variable BEST_CELL_3D_EVENT;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

2> if equation 1 has been fulfilled for a time period indicated by "time to trigger" for a GSM cell that is different from the one stored in BEST_CELL_3D_EVENT and that matches any of the BCCH ARFCN and BSIC combinations considered in that inter-RAT measurement:

3> store the Inter-RAT cell id of that GSM cell in the variable BEST_CELL_3D_EVENT;

3> send a measurement report with IEs set as below:

4> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "verified BSIC" and "Inter-RAT cell id" to the GSM cell is now stored in BEST_CELL_3D_EVENT;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

1> if the other RAT is GSM, and if IE "BSIC verification required" is set to "not required":

2> when the measurement is initiated or resumed:

3> store in the variable BEST_CELL_3D_EVENT the BCCH ARFCN of the GSM cell that has the best measured quantity among the BCCH ARFCNs considered in that inter-RAT measurement;

3> send a measurement report with IE set as below:

4> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to the BCH ARFCN that is stored in the variable BEST_CELL_3D_EVENT;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

2> if equation 1 below has been fulfilled for a time period indicated by "time to trigger" for one of the BCCH ARFCNs considered in that inter-RAT measurement and different from the one stored in BEST_CELL_3D_EVENT:

3> store the BCCH ARFCN of that GSM cell in the variable BEST_CELL_3D_EVENT;

3> send a measurement report with IEs set as below:

4> set in "inter-RAT measurement event result": "inter-RAT event identity" to "3d", "CHOICE BSIC" to "non verified BSIC" and "BCCH ARFCN" to the BCCH ARFCN that is now stored in the variable BEST_CELL_3D_EVENT;

4> set the IE "measured results" and the IE "additional measured results" according to TS 25.331 subclause 8.4.2, not taking into account the cell individual offset;

Equation 1:

$$M_{New} \geq M_{Best} + H_{3d} / 2$$

The variables in the formula are defined as follows:

M_{New} is the measurement quantity for a GSM cell that is not stored in the variable BEST_CELL_3D.

M_{Best} is the measurement quantity for a GSM cell that is stored in the variable BEST_CELL_3D.

H_{3d} is the hysteresis parameter for event 3d.

Reference

3GPP TS 25.331 clause 14.3.1.4.

8.4.1.36.3 Test Purpose

1. To confirm that the UE sends MEASUREMENT REPORT message if event 3d is configured, and if the best cell changes in the other system. To confirm that no other UE MEASUREMENT REPORT message is sent by the UE for a cell that has already triggered event 3d as long as the hysteresis condition for triggering once again event 3d has not been fulfilled.

8.4.1.36.4 Method of test

Initial Condition

System simulator: 1 UTRAN FDD cell and 2 GSM cells. The initial configurations of the ~~4~~ 2 GSM cells in the SS shall follow the values indicated in the column marked T0. The table is found in "Test procedure".

UE: CELL_DCH state, state 6-9 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- Compressed mode required yes/no

Test procedure

Table 8.4.1.36.4-1

Parameter	Unit	Cell 1 (GSM)		Cell 2 (GSM)	
		T0	T1	T0	T1
Test Channel	#	GSM Ch.1		GSM Ch.2	
BCCH ARFCN	#	1		7	
CELL identity	#	0		1	
BSIC	#	BSIC 1		BSIC 2	
RF Signal Level	dBm	-70	-90	-90	-70

The table above illustrate the downlink power to be applied for the two cells at various instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked "T1"indicates the values to be applied subsequently.

The UE is initially in CELL_DCH, state 6-9 as specified in clause 7.4 of TS 34.108. UTRA cell 1 is the only cell in the active set of the UE. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters to the UE. Three compressed mode patterns are configured, according to the message specified below. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message to the UE, to set up inter-RAT measurements. Event 3d is set up in this message, and if the UE requires compressed mode (refer ICS/IXIT), compressed mode is activated.

At instant T1, the RF signal strength for GSM cell 1 increases while the RF signal strength for GSM cell 2 decreases as described in table 8.4.1.36.4-1.

A MEASUREMENT CONTROL is then sent to the UE that releases the inter-RAT measurement, and deactivates compressed mode. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_DCH state in the cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 4.
2	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		MEASUREMENT CONTROL	SS configures event 3d in the UE. If the UE requires compressed mode (refer ICS/IXIT), compressed mode is started.
5	→		MEASUREMENT REPORT	The UE sends a MEASUREMENT REPORT to UTRAN indicating which is/are the best GSM cell/Cells just after the initiation of the measurement SS should wait long enough for the reception of this message as UE that needs compressed mode takes time to activate compressed mode patterns as well as complete BSIC verification before sending the report
6				SS re-adjusts the downlink transmission power settings according to columns "T1" in tables 8.4.1.36.4-1.
7	→		MEASUREMENT REPORT	After about 1 s, the UE sends a MEASUREMENT REPORT to SS triggered by event 3d.
8	←		MEASUREMENT CONTROL	SS releases the inter-RAT measurements, and, if the UE requires compressed mode (refer ICS/IXIT), deactivates compressed mode.
9				If the UE requires compressed mode (refer ICS/IXIT), SS checks that the UE has deactivated compressed mode.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Content

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type in Annex A titled "Speech in CS", with the following exceptions:

Information Element	Value/remark
Downlink information common for all radio links	
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM Carrier RSSI Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	12
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability) depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TGPSI	2
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM BSIC identification
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	8
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	66
- T Reconfirm abort	Not Present
- TGPSI	3
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM BSIC re-confirmation

- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	undefined
- TGPL1	8
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	1.0
- DeltaSIRAfter1	0.5
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	5 s

MEASUREMENT CONTROL (Step 4)

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event triggered
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove all inter-RAT cells
-Remove all inter-RAT cells	(No Data)
New inter-RAT cells (1 to <MaxCellMeas>)	MaxCellMeas=2
- inter-RAT cell id	Not present
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	DCS 1800 band used
- BCCH ARFCN	1
- inter-RAT cell id	Not present
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	DCS 1800 band used
- BCCH ARFCN	7
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not included
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	required
- inter-RAT reporting quantity	
CHOICE system	GSM
- Observed time difference to to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
CHOICE report criteria	
- Inter-RAT measurements reporting criteria	
- Parameters required for each event (1 to<maxMeasEvent>)	<MaxMeasEvent>=1

- Inter-RAT event identity	3d
- Threshold own system	Not present
- W	Not present
- Threshold other system	Not present
- Hysteresis	5
- Time to Trigger	200 ms
- Reporting cell status	Report cells within active set or within virtual active set or of the other RAT
- Maximum number of reported cells	2
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (250 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	<MaxTGPS>=3
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (252 ñ TTI/10msec))mod 256
- TGPSI	2
- TGPS status flag	Activate
- TGCFN	(Current CFN + (254 ñ TTI/10msec))mod 256
- TGPSI	3
- TGPS status flag	Activate
- TGCFN	(Current CFN + (250 ñ TTI/10msec))mod 256

MEASUREMENT REPORT (Step 5)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	Optional to have both Cells since a UE requiring compressed mode for inter-RAT measurements may take longer time for BSIC verification and hence need not include both the Cells
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.
CHOICE BSIC	Check it is set to verified BSIC
- inter-RAT cell id	Check that it is set to 0
- Observed time difference to GSM cell	Check that the IE is not included
- GSM carrier RSSI	Check that measurement result is reasonable (Optional as this can be included only if BSIC verification is completed)
CHOICE BSIC	Verified BSIC (Optional as this can be included only if BSIC verification is completed)
- inter-RAT cell id	Check that it is set to 1(Optional)
- Observed time difference to GSM cell	Check that the IE is not present (Optional)
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that the IE is included
- CHOICE event result	Check that this is set to inter-RAT measurement event results
- Inter-RAT event identity	Check that this is set to 3d
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1
- CHOICE BSIC	Check that this is set to verified BSIC
- Inter-RAT cell id	Check that this is set to 0.

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 3
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	Check that measurement results for two GSM cells are included
- GSM carrier RSSI	Check that measurement result is reasonable. RXLEV is mapped to a value between 0 and 63. The RSSI bits are numbered b0 to b5, where b0 is the least significant bit. When mapping the RXLEV value to the RSSI bit string, the first/ leftmost bit of the bit string contains the most significant bit.
CHOICE BSIC	Check it is set to verified BSIC
- inter-RAT cell id	Check that it is set to 1
- Observed time difference to GSM cell	Check that the IE is not included
- GSM carrier RSSI	Check that measurement result is reasonable
CHOICE BSIC	Verified BSIC
- inter-RAT cell id	Check that it is set to 0.
- Observed time difference to GSM cell	Check that the IE is not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that the IE is included
- CHOICE event result	Check that this is set to inter-RAT measurement event results
- Inter-RAT event identity	Check that this is set to 3d
- Cells to report (1 to <maxCellMeas>)	Check that <maxCellMeas> is set to 1
- CHOICE BSIC	Check that this is set to verified BSIC
- Inter-RAT cell id	Check that this is set to 1.

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	3
Measurement Command	Release
Physical channel information elements	
- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence (1 to <MaxTGPS>)	<MaxTGPS>=3
- TGPSI	1
- TGPS status flag	Deactivate
- TGCFN	Not present
- TGPSI	2
- TGPS status flag	Deactivate
- TGCFN	Not present
- TGPSI	3
- TGPS status flag	Deactivate
- TGCFN	Not present

8.4.1.36.5 Test requirement

Shortly after the UE has received the first MEASUREMENT CONTROL message it shall transmit a MEASUREMENT REPORT to the SS.

After instant T1, the UE shall begin to transmit a MEASUREMENT REPORT triggered by event 3d to the SS.

After receiving the second MEASUREMENT CONTROL message, the UE shall then stop running compressed mode.

<< END OF MODIFIED SECTION >>

3GPP TSG-T1 Meeting #25
Malta, 1st–5th November 2004

Tdoc T1-041547

CR-Form-v7

CHANGE REQUEST

34.123-1	CR	957	rev	-	Current version:	5.9.0

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the symbols.*

Proposed change affects: UICC apps ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	Correction to package 4 RRC test case 8.1.12
Source:	Anite
Work item code:	TEI
Date:	10/10/2004
Category:	F
Release:	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:

1) The **test purpose** of this test case states that:

ìTo confirm that the UE discards any RRC messages that include wrong message authentication code, or RRC message sequence number, or do not include IE"Integrity Check Info" after integrity protection is activatedî

In order to test this the RRC Message Sequence number for RB 1 needs to be initialized to 0, otherwise the UE will accept any first Sequence number transmitted on RB1.

In order to achieve this a UE CAPABILITY ENQUIRY is transmited on RB1 in the TTCN implementation.

2) There is an inconsistency between the Test Procedure and the Message Specific Content at Step 3. The Test Procedure states that at Step 3 of the expected message sequence the RRC Connection Release should be transmitted with invalid MAC-I and valid RRC message Sequence number.

However, the Specific Message Content for Step 3, indicates that an ìinvalidî value for the RRC Message Sequence Number should be sent, i.e. it states:

ìSS provides the value of this IE, from its ***previous*** internal counter valueî

3) There is an inconsistency between the Test Procedure and the Message Specific Content at Step 8. The Test Procedure indicates that at Step 8 of the expected message sequence the RRC Connection Release should be transmitted with valid MAC-I and invalid RRC message Sequence number i.e.î Ö as set to the same sequence number as the number in **previous received RRC message**ì.

	However, the Specific Message Content for Step 8, states that the RRC Message Sequence Number should be set to: ìSS provides the value of this IE, from its ***previous*** **internal counter value**î 4) At Step 11 of the expected message sequence RRC Connection Release complete message will be received from the UE ***N308 + 1*** times. This is not handled in the expected sequence. Note: This CR is to achieve alignment of the Prose and the TTCN.
Summary of change: ⌘	Following changes are done in 34.123-1 section 8.1.12.4 1) Added Step Step 0 to 0c in the expected Sequence to handle UE Capability Enquiry Procedure. 2) In the Message Specific content for RRC Connection Release at Step 3 changed RRC Message Sequence Number to the current Sequence Number. 3) In the Message Specific content for RRC Connection Release at Step 8 changed RRC Message Sequence Number to the last message accepted by the UE on this radio bearer. 4) For the expetced sequence at Step 11, added the following comments: ìSS waits for the arrival of N308 + 1 such messages using unacknowledged modeî
Consequences if not approved: ⌘	Inconsistency will remain within the prose and between the test prose and the TTCN Implementation.

Clauses affected:	⌘	8.1.12.4			
		Y	**N**		
Other specs affected:	⌘		**X**	Other core specifications	⌘
		X		Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects R99, Rel4 and Rel5 UEís			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request

<< START OF MODIFIED SECTION >>

8.1.12.4 Method of test

Initial Condition

System Simulator: 1cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS_DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE after integrity protection is activated on all SRBs.

Test Procedure

The UE is in CELL_DCH state, radio access bearer and integrity protection is already activated in generic setup procedure.

The SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. The SS then sends UE CAPABILITY INFORMATION CONFIRM message to the UE. This procedure is used to initialise the downlink RRC message sequence number in the UE.

SS transmits RRC CONNECTION RELEASE message which does not include IE"Integrity Check Info" on downlink DCCH. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes wrong message authentication code on downlink DCCH. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes IE"RRC Message sequence number" as set to the same sequence number as the number in previous received RRC message. The UE shall discard this message and shall not respond using RRC CONNECTION RELEASE COMPLETE message.

Then SS transmits RRC CONNECTION RELEASE message which includes correct RRC Message sequence number and message authentication code. The UE shall transmit RRC CONNECTION RELEASE COMPLETE message on uplink DCCH and enter ~~to~~the idle state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0				The UE is in CELL_DCH state.
0a	←		UE CAPABILITY ENQUIRY	The SS shall send this message to ensure correct initialisation of RRC message sequence number on downlink DCCH using RLC-UM
0b	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM
0c	←		UE CAPABILITY INFORMATION CONFIRM	
1	←		RRC CONNECTION RELEASE	See specific message content
2				During 5s after step 1, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is ended as fail.
3	←		RRC CONNECTION RELEASE	See specific message content
4				During 5s after step 3, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is end as fail.
5			Void	
6			Void	
7			Void	
8	←		RRC CONNECTION RELEASE	See specific message content
9				During 5s after step 8, confirm that UE does not transmit RRC CONNECTION RELEASE COMPLETE message. If RRC CONNECTION RELEASE COMPLETE message is received, the test is end as fail.
10	←		RRC CONNECTION RELEASE	Use default message content.
11	→		RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 + 1 such messages using unacknowledged mode.
12	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle state, the test passes, otherwise it fails.

Specific Message Content

RRC CONNECTION RELEASE (Step 1)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info	Not Present

RRC CONNECTION RELEASE (Step 3)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info - Message authentication code	SS calculates the value of MAC-I for this message and set different value from the calculated result to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its ~~previous~~ internal counter value.

RRC CONNECTION RELEASE (Step 8)

Use the same message type found in clause 9 of TS 34.108, with the following exception:

Information Element	Value/remark
Integrity check info - Message authentication code	SS calculates the value of MAC-I for this message and set the result to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE equal to ~~, from~~ the value for the last message accepted by the UE on this radio bearer~~its previous internal counter value~~ .

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘T1-041548

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **958** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections to package 4 ISHO test case 8.3.7.12
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	06/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	1) At step 5 the UE is expected to transmit a HANDOVER ACCESS message to the SS and this will not occur unless a dedicated channel was originally configured in the GSM cell. 2) The message specific content for the physical channel parameters transmitted in the CELL UPDATE CONFIRM message (Step 7) from the SS are the same as the RRC CONNECTION SETUP message in the pre-amble. However, at this point it should be for a Speech CS Radio Bearer. 3) In STEP3 of the Expected Sequence the word ëoldí should be removed.
Summary of change:	⌘	1) A new step (STEP 2) is inserted in the Expected Sequence to configure a dedicated channel on the GSM cell. The Test Procedure is updated accordingly. 2) The CELL UPDATE CONFIRM message at step 7 is updated to include physical channel parameters for the Speech CS Radio Bearer (A2). 3) In STEP3 of the Expected Sequence the word ëoldí is removed.
Consequences if not approved:	⌘	Test case will fail a conformant UE..

Clauses affected:	⌘	8.3.7.12
Other specs	⌘	Y ☐ N ☒ Other core specifications ⌘

Affected:	X	Test specifications
	X	O&M Specifications
Other comments:	⌘	Affects Rel-5, Rel-4 and R99 UEs

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

8.3.7.12 Inter system handover from UTRAN/To GSM/Speech/Failure (Physical channel Failure and Reversion Failure)

8.3.7.12.1 Definition

8.3.7.12.2 Conformance requirement:

If the UE does not succeed in establishing the connection to the target radio access technology, it shall:

1> revert back to the UTRA configuration;

1> establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND;

1> if the UE does not succeed to establish the UTRA physical channel(s):

2> perform a cell update procedure according to subclause 8.3.1 in TS 25.331with cause "Radio link failure";

2> when the cell update procedure has completed successfully:

3> proceed as below.

1> transmit the HANDOVER FROM UTRAN FAILURE message setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT handover failure" to "physical channel failure".

1> When the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.3.7.5

8.3.7.12.3 Test purpose

The UE shall perform a cell update when the UE fails to revert to the old configuration after the detection of physical channel failure in the target RAT cell as given in the HANDOVER FROM UTRAN COMMAND message. After the UE completes the cell update procedure, the UE shall transmit a HANDOVER FROM UTRAN FAILURE message on the DCCH using AM RLC, including IE "failure cause" set to "physical channel failure".

8.3.7.12.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 11.10-1 section 26.6.5.1 shall be referenced for the default parameters of cell 9.

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

UE supports both GSM and UTRAN Radio Access Technologies,

UE supports GSM FR,

UE supports UTRAN AMR,

UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS.

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS and brings the UE into call active state (CC state U10) with AMR on the UTRAN cell. The SS configures a target dedicated channel on the GSM cell.The SS sends a HANDOVER FROM UTRAN COMMAND indicating a dedicated channel ~~(not configured)~~ of the target GSM cell to the UE through DCCH using the UTRAN configuration. The UE receives the command and configures itself accordingly but cannot complete the handover and wants to revert to the old configuration, but the UE cannot revert to the old configuration because the SS released the old configuration. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure". The SS shall transmit CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. The UE transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits the HANDOVER FROM UTRAN FAILURE message to the SS using the new UTRA configuration, on the DCCH using AM RLC, setting the value of IE "failure cause" to " physical channel failure".

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS brings the UE into UTRAN U10 state in cell 1
2	SS			The SS configures a dedicated GSM FR channel on the GSM cell.
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send using the ~~old~~ UTRA configuration and the message indicates: the target channel for GSM FR.
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER COMMAND message that is contained within the HANDOVER FROM UTRAN COMMAND -GSM message
5	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell. Upon receiving this burst, SS removes both the target GSM Traffic Channel and the UTRA physical channel (DPCH) allocated to the mobile before handover command transmission. As a result not only the handover will fail, but also the reversion to the old UTRA configuration.
6	→		CELL UPDATE	The value "radio link failure" shall be set in IE "Cell update cause".
7	←		CELL UPDATE CONFIRM	This message include IE "Physical channel information elements".
8				The SS configures the dedicated physical channel according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
10	→		HANDOVER FROM UTRAN FAILURE	The IE "failure cause" shall be set to "physical channel failure"

Specific message contents

Same as the message contents of clause 8.3.7.1 for Execution 3.

CELL UPDATE (Step 6)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 7) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS 34.108, clause 9,with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 3
RRC State indicator	CELL_DCH
CHOICE channel requirement	Uplink DPCH info
-UplinkDPCH Info	Same as ~~RRC CONNECTION SETUP message used to move to initial condition~~specified in ìContents of RADIO BEARER SETUP message: AM or UMî for condition A2 (Speech CS) in TS 34.108 clause 9.1
- DPCCH power offset	-80dB (i.e. ASN.1 IE value of ñ40)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink information common for all radio links	Same as specified in ìContents of RADIO BEARER SETUP message: AM or UMî for condition A2 (Speech CS) in TS 34.108 clause 9.1~~RRC CONNECTION SETUP message used to move to initial condition~~
CHOICE Mode	FDD
- Downlink DPCH info common for all RL	
- Timing indicator	Initialise
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- DPC mode	0 (single)
- CHOICE mode	FDD
- Power offset PPilot-DPDCH	0
- DL rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio links	
- Primary CPICH info	
- Primary scrambling code	100
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	0 chips
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	2
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	SF-1(SF is reference to TS34.108 clause 6.10 Parameter Set)
- Scrambling code change	No change
- TPC combination index	0
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not Present

CELL UPDATE CONFIRM (Step 7) (3.84 Mcps TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS34.108, clause 9, with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 3
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- CHOICE SyncCase	Not Present
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

CELL UPDATE CONFIRM (Step 7) (1.28 Mcps TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in TS34.108, clause 9, with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 3
RRC State indicator	CELL_DCH
Frequency info	
- CHOICE mode	TDD
- UARFCN (Nt)	Reference to TS34.108 clause 5.1 Test frequencies
Maximum allowed UL TX power	30dBm
CHOICE Mode	TDD
Downlink information for each radio links	
- Primary CCPCH info	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- TSTD indicator	FALSE
- Cell Parameters ID	Not Present
- Block STTD indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	TDD
- DL CCTrCh List	
- TFCS ID	1
- Time info	
- Activation time	Not Present (default)
- Duration	Not Present (default)
- Common timeslot info	Not Present (default)
- Downlink DPCH timeslots and codes	Not Present (default)
- UL CCTrCH TPC List	Not Present (default)

HANDOVER FROM UTRAN COMMAND

The contents of this message is identical to the HANDOVER FROM UTRAN COMMAND-GSM message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Inter-system message - System type - Frequency Band - CHOICE GSM message - Message	 GSM Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band" Single GSM message GSM HANDOVER COMMAND formatted as BIT STRING (1..512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1

HANDOVER FROM UTRAN FAILURE

The contents of this message is identical to the HANDOVER FROM UTRAN FAILURE message specified in [9] TS 34.108 clause 9.

8.3.7.12.5 Test requirement

After step 5 the SS shall receive an CELL UPDATE message.

After step 8 the SS shall receive an PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

After step 9 the SS shall receive an INTER-SYSTEM HANDOVER FAILURE message via the new UTRA configuration.

<< END OF MODIFIED SECTION >>

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘ T1- 041554

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **959** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Low Priority RRC Test case 8.4.1.6
Source:	⌘	Sasken Communication Technologies Limited
Work item code:	⌘	TEI
Date:	⌘	05/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
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R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	At step 1, SIB12 is transmitted when UE is in PS-DCCH+DTCH_DCH (state 6-10) in cell 1. But a UE in CELL_DCH state will not be able to read SIB12 if it doesnít support simultaneous reception of one SCCPCH and one DPCH
Summary of change:	⌘	1) In the initial condition , SIB12 message content is added and it is specified that SIB12 is transmitted before idle update preamble. 2) Step 1 is made as void
Consequences if not approved:	⌘	Incorrect implementation of the test procedure

Clauses affected:	⌘	8.4.1.6.4

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
	X		Test specifications	
		X	O&M Specifications	

Other comments:	⌘	This CR has minor impact on TTCN implementation.

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downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4.1.6 Measurement Control and Report: Inter-frequency measurement for transition from CELL_DCH to CELL_FACH state (FDD)

8.4.1.6.1 Definition

8.4.1.6.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH/ CELL_PCH/URA_PCH state, the UE shall:

1> stop the inter-frequency type measurement reporting assigned in a MEASUREMENT CONTROL message;

1> begin monitoring cells listed in the IE "inter-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11);

1> in CELL_FACH state:

2> perform measurements on other frequencies according to the IE "FACH measurement occasion info".

Reference

3GPP TS 25.331, clause 8.4.1.6.2

8.4.1.6.3 Test Purpose

1. To confirm that UE ceases inter-frequency type measurement reporting assigned in MEASUREMENT CONTROL message when moving from CELL_DCH state to CELL_FACH.
2. To confirm that the UE begins to monitor the cells listed in "inter-frequency cell info" received in System Information Block type 11 or 12 messages, following a state transition from CELL_DCH state to CELL_FACH state.

8.4.1.6.4 Method of test

Initial Condition

System Simulator: 2 cells ñ Cell 1 and cell 2 are active.

UE: PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statements

- Compressed mode required yes/no

Specific Message contents

For system information block 12 for Cell1 (gives IEs which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble

System Information Block Type 12 (Step 1)

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	2
- Inter-frequency FDD measurement indicator	FALSE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present
Measurement control system information	
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

Test Procedure

Table 8.4.1.6-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.6-1

Parameter	Unit	Cell 1		Cell 4	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec	dBm/ 3.84 MHz	-60	-75	-75	-60

The UE is initially in CELL_DCH state. The System Information Block type 12 message is modified with respect to the default settings, so that no measurement tasks are required of the UE. If UE requires compressed mode, SS transmits PHYSICAL CHANNEL RECONFIGURATION message. In this message, IE "DPCH compressed mode info" is present, which indicates that the UE shall apply the given parameters for compressed mode operations. The UE shall return a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to acknowledge that compressed mode mechanism can be exercised.

SS sends a MEASUREMENT CONTROL message to the UE, including cell 4 into the IE "inter-frequency cell info". The IE "CHOICE reporting criteria" in this message is set to "periodic reporting criteria". SS waits for 8 seconds to allow the periodic timer to expire. The UE shall send a MEASUREMENT REPORT message containing IE "inter-frequency cell measurement results" to report cell 4's CPICH RSCP value. SS transmits PHYSICAL CHANNEL RECONFIGURATION message and reconfigures common physical channels. The UE shall move to CELL_FACH state and then return a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS.

SS modifies the contents of Master Information Block (MIB) and System Information Block (SIB) type 12. In SIB 12, cell 4 is added to the cells listed in the "inter-frequency cell info" IE. SS transmit SYSTEM INFORMATION CHANGE INDICATIONmessage to UE. SS waits for 8 seconds to detect any uplink MEASUREMENT REPORT messages. SS verifies that no MEASUREMENT REPORT message(s) are received as a result of inter-frequency measurements. SS then reconfigures the downlink transmission power settings of cell 1 and cell 4 according to the values stated in columns "T1" of table 8.4.1.6-1. SS waits for the UE to perform cell re-selection. The UE shall transmit a CELL UPDATE message on the uplink CCCH of cell 4, specifying the "cell update cause" IE as "cell re-selection". SS replies with CELL UPDATE CONFIRM message, which includes IE "New C-RNTI", on the downlink DCCH to complete the cell update procedure. The UE shall reply with a UTRAN MOBILITY INFORMATION CONFIRM message.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
~~1~~	~~←~~		~~System Information Block type 12~~ Void	~~PS-DCCH+DTCH_DCH (state 6-10) in cell 1. System Information Block type 12 is modified with respect to the default settings. All measurement and reporting activities are disabled in this message.~~
2			Void	If compresed mode is not required (refer ICS/IXIT), goto step 8.
3			Void	
4			Void	
5			Void	
6	←		PHYSICAL CHANNEL RECONFIGURATION	SS instructs UE to begin compressed mode operation.
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall remain in CELL_DCH state.
8	←		MEASUREMENT CONTROL	SS indicates that the CPICH RSCP of cell 4 shall be monitored and reported. SS waits for 8 seconds for the reception of MEASUREMENT REPORT message.
9	→		MEASUREMENT REPORT	UE shall transmit this message to report cell 4's CPICH RSCP value.
10	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures common physical channels.
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall moves to CELL_FACH state.
12	←		Master Information Block, System Information Block type 12	SS modifies MIB and SIB 12. Cell 4 is included in the IE "inter-frequency cell info"
13	←		SYSTEM INFORMATION CHANGE INDICATION	SS waits for 8 seconds to verify that no MEASUREMENT REPORT messages are detected on the uplink DCCH.
14				SS changes the power settings for cell 1 and cell 4 according to columns marked "T1" of table 8.4.1.6-1, and then waits for the UE to re-select to a new cell.
15	→		CELL UPDATE	UE shall perform cell re-selection and transmit this message on the new cell.
16	←		CELL UPDATE CONFIRM	See message content.
17	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Content

~~System Information Block Type 12 (Step 1)~~

~~Information Element~~	~~Value/remark~~
~~FACH measurement occasion info~~	
~~- FACH Measurement occasion cycle length coefficient~~	~~2~~
~~- Inter-frequency FDD measurement indicator~~	~~FALSE~~
~~- Inter-frequency TDD measurement indicator~~	~~FALSE~~
~~- Inter-RAT measurement indicators~~	~~Not Present~~
~~Measurement control system information~~	
~~- Intra-frequency measurement system information~~	~~Not Present~~
~~- Inter-frequency measurement system information~~	~~Not Present~~
~~- Inter-RAT measurement system information~~	~~Not Present~~
~~- Traffic volume measurement system information~~	~~Not Present~~

RRC CONNECTION SETUP (Step 4)

Use the same message sub-type found in Clause 9 of TS 34.108, which is entitled "Transition to CELL_DCH"

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/remark
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	Not Present
- CHOICE Mode	FDD
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN+(256 ñ TTI/10msec)) mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL or DL only depending on UE capability
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2 or Not present depending on UE capability
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity Mode	None
- SSDT information	Not Present
- Default DPCH Offset Value	Not Present
Downlink information for each radio link	Not Present

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	UARFCN of the uplink frequency for cell 4
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 4
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	
- Inter-frequency cell id	4
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	Not Present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	8 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 9)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-frequency measured results list"
- Inter-frequency measurement results	
- Frequency info	
- UARFCN (uplink)	Check to see if set to the UARFCN of the uplink frequency for cell 4
- UARFCN (downlink)	Check to see if set to the UARFCN of the downlink frequency for cell 4
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if set to the same code for cell 4
- CPICH Ec/No	Check to see if it is absent
- CPICH RSCP	Check to see if it is present
- Pathloss	Check to see if it is absent
Measured Results on RACH	Check to see if it is absent
Event Results	Check to see if it is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 10)

If UE do not require compressed mode, use the same message sub-type found in TS 34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)".

If UE requires compressed mode, use the same message sub-type found in TS34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)", with the following exceptions in the IE(s) concerned:

Information Element	Value/Remarks
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	Not Present
- CHOICE mode	FDD
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not Present
- Transmission gap pattern sequence configuration parameters	Not Present
- TX Diversity Mode	None
- SSDT information	Not Present
- Default DPCH Offset Value	Not Present

Master Information Block (Step 12)

Information Element	Value/Remarks
MIB value tag	2

System Information Block type 12 (Step 12)

Information Element	Value/remark
Measurement control system information	
- Use of HCS	Not used
- Cell_selection_and_reselection_-quality_measure	CPICH_Ec/No
- Intra-frequency measurement system information	Not Present
- Inter-frequency measurement system information	
- Inter-frequency cell info list	
- CHOICE Inter-frequency cell removal	Not Present
- New inter-frequency cells	
- Inter-frequency cell id	4
- Frequency info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present Absence of this IE is equivalent to apply the default duplex distance defined for the operating frequency according to TS 25.101
- UARFCN downlink (Nd)	Reference to table 6.1.2 of TS 34.108 for Cell 4
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.4 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH Tx power	Not Present
- TX diversity indicator	FALSE
- Cell selection and re-selection info	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 13)

Information Element	Value/Remarks
BCCH modification info - MIB Value tag	 2

CELL UPDATE (Step 15)

Information Element	Value/remark
U-RNTI	Check to see if same to value assigned in P3 or P5
Cell update cause	Check to see if it is set to "Cell Reselection"
Protocol error info	Check to see if it is absent or set to FALSE
Measured results on RACH	Check to see if it is absent
Protocol error information	Check to see if it is absent

CELL UPDATE CONFIRM (Step 16)

Use the same message sub-type found in Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 17)

Only the message type is checked.

8.4.1.6.5 Test Requirement

If UE requires compressed mode, after step 6, the UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 8 the UE shall transmit MEASUREMENT REPORT message to report cell 4's RSCP value in the IE "inter-frequency cell measured results".

After step 10, the UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 11 the UE shall stop sending MEASUREMENT REPORT messages, which contain inter-frequency measured results for cell 4's CPICH RSCP value.

After step 14 the UE shall transmit CELL UPDATE message on the uplink CCCH of cell 4, and the "cell update cause" IE shall be set to "cell reselection".

After step 16, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH AM RLC.

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘ T1- 041560

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **960** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to P2 Inter-RAT cell reselection test cases 6.2.2.1 and 6.2.2.2
Source:	⌘	Sasken Communication Technologies Limited
Work item code:	⌘	TEI
Date:	⌘	10/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	1. In the test procedure the cell is barred (step d), but it is not notified to UE 2. At step g before repeating the test steps a-e, the barred cell is not made as unbarred
Summary of change:	⌘	1. Existing step d is appended with ìSS notifies BCCH modification to UEî 2. At step f the barred cell is made as ìnot barredî
Consequences if not approved:	⌘	Prose and TTCN implementation will not be aligned

Clauses affected:	⌘	6.2.2.1.4 and 6.2.2.2.4

Other specs affected: ⌘	Y	N	
		X	Other core specifications
	X		Test specifications
		X	O&M Specifications

⌘

Other comments:	⌘	This CR does not affect the TTCN implementation

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.2.2.1 Cell reselection if cell becomes barred or S<0; UTRAN to GSM

6.2.2.1.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from UTRAN to GSM if the UTRAN cell becomes barred or S falls below zero.

6.2.2.1.2 Conformance requirement

1. When camped on a cell, the UE shall regularly search for a better cell according to the cell reselection criteria. If a better cell is found, that cell is selected. The change of cell may imply a change of RAT.

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   2.1 The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.

   2.2 The cell is not barred.

   2.3 The cell is not part of the list of "forbidden LAs for roaming".

   2.4 The cell selection criteria are fulfilled.

3. When camped normally, the UE shall execute the cell reselection evaluation process on the following occasions/triggers:

   3.1 UE internal triggers, so as to meet performance as specified in TS 25.133 for FDD and TS 25.123 for TDD.

   3.2 When information on the BCCH used for the cell reselection evaluation procedure has been modified.

4. Cell Reselection Criteria:

   4.1 The UE shall perform ranking of all cells that fulfil the S criterion.

   4.2 The cells shall be ranked according to the R criteria, deriving Qmeas,n and Qmeas,s and calculating the R values using CPICH RSCP, P-CCPCH RSCP and the averaged received signal level as specified in TS 25.133 and TS 25.123 for FDD, TDD and GSM cells, respectively.

   The offset $Qoffset1_{s,n}$ is used for $Qoffset_{s,n}$ to calculate R_n, the hysteresis $Qhyst1_s$ is used for $Qhyst_s$ to calculate R_s.

   If the usage of HCS is indicated in system information, $TEMP\_OFFSET1_n$ is used for $TEMP\_OFFSET_n$ to calculate TO_n. If it is indicated in system information that HCS is not used, $TEMP\_OFFSET_n$ is not applied when calculating R_n. The best ranked cell is the cell with the highest R value.

   If a TDD or GSM cell is ranked as the best cell, then the UE shall perform cell re-selection to that TDD or GSM cell.

   4.3 In all cases, the UE shall reselect the new cell, only if the the following conditions are met:

   - the new cell is better ranked than the serving cell during a time interval Treselection.
   - more than 1 second has elapsed since the UE camped on the current serving cell.

References

1. TS 25.304, clause 5.2.1.
2. TS 25.304, clause 4.3.
3. TS 25.304, clause 5.2.5.1.
4. TS 25.304, clause 5.2.6.1.4.

6.2.2.1.3 Test purpose

1. To verify that the UE performs cell reselection from UTRAN to GSM on the following occasions:

   1.1 Serving cell becomes barred.

   1.2 S<0 for serving cell.

6.2.2.1.4 Method of test

Initial conditions

UE is idle updated on cell 1.

All cells belong to the same PLMN.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 9 (GSM) and Cell 10 (GSM).

The 3G Neighbour Cell Description of Cell 9 (GSM) and Cell 10 (GSM) refers to Cell 1 (UTRAN)

Step a-c:

Parameter	Unit	Cell 1 (UTRAN)
Test Channel		1
CPICH_Ec (FDD)	dBm / 3.84 MHz	-60
P-CCPCH_RSCP (TDD)	dBm	-60
Qrxlevmin	dBm	-80
Srxlev*	dBm	41
CellBarred		Not barred
S-search RAT	dB	+20

Parameter	Unit	Cell 9 (GSM)	Cell 10 (GSM)
Test Channel		1	2
RF Signal Level	dBm	-80	-85
RXLEV_ACCESS_MIN	dBm	-100	-100
C1*	dBm	20	15
FDD_Qmin	dB	-20	-20
FDD_Qoffset	dBm	0	0

Step d-f:

Parameter	Unit	Cell 1 (UTRAN)
CellBarred		Not barred -> Barred
Tbarred	s	80

Step g:

Parameter	Unit	Cell 1 (UTRAN)
CPICH_Ec (FDD)	dBm/ 3.84 MHz	-90
P-CCPCH_RSCP (TDD)	dBm	-90
Srxlev*	dB	40 -> -19

Test procedure

Method B is applied.

a) The SS activates cells 9, and 10. The SS monitors cells 9 and 10 for random access requests from the UE.

b) Void

c) Void

d) The SS sets Cell 1 to be barred. The SS notifies UE of the BCCH modification

e) The SS waits for random access request from the UE.

f) The UE is switched off. The SS sets Cell 1 to be not barred

g) Step a-e) is repeated except that in step d), the signal level is reduced, so S will become negative instead of being barred.

6.2.2.1.5 Test Requirements

1) In step a), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

2) In step e), the UE shall respond on Cell 9.

3) In step g), the UE shall respond on Cell 9 after the signal level is reduced.

6.2.2.2 Cell reselection if cell becomes barred or C1<0; GSM to UTRAN

6.2.2.2.1 Definition

Test to verify that if both a GSM and UTRAN network is available, the UE performs cell reselection from GSM to UTRAN if the GSM cell becomes barred or the path loss criterion C1 falls below zero for a period of 5 s.

6.2.2.2.2 Conformance requirement

1. At least every 5 s the MS shall calculate the value of C1 and C2 for the serving cell and re-calculate C1 and C2 values for non serving cells (if necessary). The MS shall then check whether:

   1.1 The path loss criterion (C1) for current serving cell falls below zero for a period of 5 s. This indicates that the path loss to the cell has become too high.

2. While camped on a cell of the registered PLMN ("camped normally"), the MS may need to select a different cell ("normal cell reselection" state). The following events trigger a cell reselection:

   2.1 The path loss criterion parameter C1 (see TS 03.22, clause 3.6) indicates that the path loss to the cell has become too high;

   2.2 The cell camped on (current serving cell) has become barred.

References

1. TS 05.08, clause 6.6.2.
2. TS 03.22, clause 4.5.

6.2.2.2.3 Test purpose

1. To verify that the UE performs cell reselection from GSM to UTRAN on the following occasions:

   1.1 Serving cell becomes barred.

   1.2 The path loss criterion C1 for serving cell falls below zero for a period of 5 s.

6.2.2.2.4 Method of test

Initial conditions

UE is idle updated on Cell 9.

Cell 9:

The SS transmitted system information for Cell 1 and Cell 2 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The 3G Neighbour Cell Description of Cell 9 (GSM) refers Cell 1 (UTRAN) and Cell 2 (UTRAN).

SYSTEM INFORMATION TYPE 3 REST OCTETS

- SI2q indicated on BCCH Extended

SYSTEM INFORMATION TYPE 2QUATER

Information Element	Value/remark
< **RR management Protocol Discriminator** bit (4) >	ë0110'B
< **Skip Indicator** : bit (4) >	ë0000'B
< **Message type** : bit (8) >	ë0000 0111íB
< **SI2 quarter Rest Octets** >	
< **BA_IND** : bit >	0
< **3G_BA_IND** : bit >	0
< **MP_CHANGE_MARK** : bit >	0
< **SI2quater _INDEX** : bit (4) >	ë0000íB
< **SI2quater_COUNT** : bit (4) >	ë0000íB
0 | 1 < **Measurement_Parameters Description >**	0
0 | 1 < **GPRS_Real Time Difference Description >**	0
0 | 1 < **GPSR_BSIC Description >**	0
0 | 1 < **GPRS_REPORT PRIORITY Description >**	0
0 | 1 < **GPRS_Measurement_Parameters Description >**	0
0 | 1 < **NC Measurement Parameters >**	0
0 | 1 < **extension length** >	0
0 | 1 < **3G Neighbour Cell Description >**	1
0 | 1 < **Index_Start_3G** : bit (7) >	0
0 | 1 < **Absolute_Index_Start_EMR** : bit (7) >	0
0 | 1 < **UTRAN FDD Description >**	1
0 | 1 < **Bandwidth_FDD** : bit (3) >	0
1 < **Repeated UTRAN FDD Neighbour Cells >** ** 0	1
0 < **FDD-ARFCN** : bit (14) >	0 See TS 34.108, clause 6.1.5, table 6.1.1
< **FDD_Indic0** : bit >	0
< **NR_OF_FDD_CELLS** : bit (5) >	ë00002íB
< **FDD_CELL_INFORMATION Field >**	19 bits Scrambling code according to TS 34.108, clause 6.1.4, Default settings for cell No.1 and cell No.2
1 < **Repeated UTRAN FDD Neighbour Cells >** ** 0	0
0 | 1 < **UTRAN TDD Description >**	0
0 | 1 < **3G MEASUREMENT Parameters Description >**	1
< **Qsearch_I :** bit (4) >	ë0111íB (Always)
< **Qsearch_C_Initial :** bit (1) >	0
0 | 1 < **FDD_Qoffset** : bit (4) >	1 ë1000íB (0 dB)
< **FDD_REP_QUANT** : bit (1) >	0
< **FDD_MULTIRAT_REPORTING** : bit (2) >	ë00íB
< **FDD_Qmin** : bit (3) >	í111íB (-12 dB)
0 | 1 < **TDD_Qoffset** : bit (4) >	0
0 | 1 < **GPRS_3G_MEASUREMENT Parameters Description >**	1
< **Qsearch_P** : bit (4) >	ë1111íB (Never)
< **3G_SEARCH_PRIO** : bit >	0
0 | 1 < **FDD_REP_QUANT** : bit >	0
0 | 1 < **FDD_REPORTING_OFFSET** : bit (3) >	0
0 | 1 < **TDD_MULTIRAT_REPORTING** : bit (2) >	0
0 | 1 < **TDD_REPORTING_OFFSET** : bit (3) >	0

Cell 1 and Cell 2:

The SS transmitted system information for Cell 1 and Cell 2 shall be according to TS 34.108, clause 6.1.4 with the following exceptions:

The Inter-RAT Cell Info List of Cell 1 (UTRAN) and Cell 2 (UTRAN) refers to Cell 9 (GSM).

Step a-c:

Parameter	Unit	Cell 9 (GSM)
Test Channel		1
RF Signal Level	dBm	-50
RXLEV_ACCESS_MIN	dBm	-70
MS_TXPWR_MAX_CCH	dBm	Max. output power of UE
FDD_Qmin	dB	-20
FDD_Qoffset	dB	0
CELL_BAR_ACCESS		Not barred
C1*	dB	20

Parameter	Unit	Cell 1 (UTRAN)	Cell 2 (UTRAN)
P-CCPCH_RSCP (TDD)	dBm	-60	-70
CPICH_Ec (FDD)	dBm/3.84 MHz	-60	-70
Qrxlevmin	dBm	-101	-101
Srxlev*	dB	41	31

Step d-e:

Parameter	Unit	Cell 9 (GSM)
CELL_BAR_ACCESS		Not barred -> Barred

Step f-g:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-50 -> -80 (4sec) -> -50
C1*	dB	20 -> -10 (4sec) -> 20

Step h:

Parameter	Unit	Cell 9 (GSM)
RF Signal Level	dBm	-50 -> -80
C1*	dB	20 -> -10

Test procedure

Method B is applied.

a) The SS activates cells 1, and 2. The SS monitors cells 1 and 2 for random access requests from the UE.

b) Void.

c) Void

d) The SS sets Cell 9 to be barred. The SS notifies UE of the BCCH modification

e) The SS waits for random access request from the UE.

f) The UE is switched off. The SS sets Cell 9 to be not barred

g) Step a-e) is repeated except that in step d), the SS reduces signal level on Cell 9 to ñ80 dBm for 4 s and then raises the level back to ñ50 dBm (C1 becomes ñ10 dBm during this period).

h) The SS reduces signal level on Cell 9 to ñ80 dBm.

6.2.2.2.5 Test Requirements

1) In step a), after the UE has responded on Cell 9, it shall not respond on any other cell within 1 min.

2) In step e), the UE shall respond on Cell 1.

3) In step g), there shall be no access on Cell 1 within 30 s, after having reduced the signal level on Cell 1.

4) In step h), the UE shall respond on Cell 1.

3GPP TSGñT1 Meeting #25
Malta, 1th ñ 5th November 2004

Tdoc ⌘T1-041569

CR-Form-v7

CHANGE REQUEST

⌘ **TS34.123-1** **CR** 961 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1Rel-5: Correction of 8_4_1_1A for TDD
Source:	⌘	CATT/CCSA
Work item code:	⌘	LCR TDD
Date:	⌘	010/12/2004
Category:	⌘	***F***
Release:	⌘	*Rel-5*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	1. The fourth item of the test purposes in 8.4.1.1A.3 is not the content for UEís transmission test from Idle mode to CELL_DCH. 2. The ëEí éCell measured resultsí in MEASUREMENT REPORT (Step 6 and 7), MEASUREMENT REPORT (Step 11) and MEASUREMENT REPORT (Step 13) is not correct in format. 3. There are format errors in ëEí ëintra-frequency reporting quantityí in System Information Block type 11 (Step 1) and MEASUREMENT CONTROL (Step 8).
Summary of change:	⌘	1. The fourth item of the test purposes in 8.4.1.1A.3 is deleted. 2. The ëEí éCell measured resultsí in MEASUREMENT REPORT (Step 6 and 7), MEASUREMENT REPORT (Step 11) and MEASUREMENT REPORT (Step 13) is corrected in format. 3. The format errors in ëEí ëintra-frequency reporting quantityí in System Information Block type 11 (Step 1) and MEASUREMENT CONTROL (Step 8) are corrected.
Consequences if not approved:	⌘	The test case will not executed rightly for TDD.

Clauses affected:	⌘	8.4.1.1A
Other specs affected:	⌘	Y ☐ Other core specifications ⌘ X ☐ Test specifications ☐ ☐ O&M Specifications
Other comments:	⌘	The CR is only connected with TDD test cases.

8.4.1.1A Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_DCH state (TDD)

8.4.1.1A.1 Definition

8.4.1.1A.2 Conformance requirement

The UE shall obey the following rules for different measurement types after transiting from idle mode to CELL_DCH state:

Upon transition from idle mode to CELL_DCH state, the UE shall:

1> if intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> begin measurement reporting.

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 in TS 25.331 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

1> clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE "Additional Measurement List" is present:

2> if the received measurement configuration in this MEASUREMENT CONTROL message, or any measurement identities in the "Additional Measurement List" do not all have the same validity:

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> and the procedure ends.

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

In CELL_DCH state, the UE shall:

1> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing measurements that are being performed in the UE.

The reporting criteria are fulfilled if either:

- the first measurement has been completed according to the requirements set in [19] or [20] for a newly initiated measurement with periodic reporting; or
- the time period indicated in the stored IE "Periodical reporting criteria" has elapsed since the last measurement report was submitted to lower layers for a given measurement; or
- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

1> set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT_IDENTITY;

1> set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY; and

2> if all the reporting quantities are set to "false":

3> not set the IE "measured results".

1> set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the "Additional measurements list" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report; and

2> if more than one additional measured results are to be included:

3> include only the available additional measured results, and sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message.

1> if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):

2> set the IE "Event results" according to the event that triggered the report.

The UE shall:

1> transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:

1> the procedure ends.

Reference

TS 25.331, clauses 8.4.1.8.1, 8.4.2, 8.4.1.3.

8.4.1.1A.3 Test Purpose

1. To confirm that the UE continues to monitor intra-frequency measurement quantity of the cells listed in System Information Block type 11 or 12 messages, after it has entered CELL_DCH state from idle mode. When the intra-frequency measurement reporting criteria specified in System Information Block type 11 or 12 messages have been met, it shall report the measurements using MEASUREMENT REPORT message(s).

2. To confirm that the UE terminates monitoring and reporting activities for the cells listed in "intra-frequency cell info list" IE in System Information Block type 11 or 12 messages, after it has received a MEASUREMENT CONTROL message that specifies the measurement type to be "intra-frequency measurement" with the same measurement identity as in System Information Block Type 11 or 12 messages.

3. To confirm that the UE reconfigures the monitoring and reporting activities based on the last MEASUREMENT CONTROL message received.

~~4. To confirm that the UE sends MEASUREMENT REPORT message if event 1G is configured and intra-frequency measurement indicates change in best cell.~~

8.4.1.1A.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1, Cell 2 and Cell 3 are active.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.1A-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

Column marked "T0" denotes the initial conditions, while column marked as "T1" will be applied during the test.

Table 8.4.1.1A-1

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1		Ch.1	
PCCPCH_RSCP	dBm	-69	-69	-74	-64	-79	-67

The UE is initially in idle mode and has selected cell 1 for camping. The System Information Block type 11 messages are modified with respect to the default settings to prevent reporting of "Cell synchronisation information" and also to include cell 2 into the monitored neighbour cell list. The key measurement parameters in the modified System Information Block message are as follow: measurement type = "intra-frequency measurement", measurement quantity = "PCCPCH RSCP", report criteria = "periodic reporting criteria", reporting interval = "64 seconds".

SS prompts the operator to make an outgoing call of a supported traffic class. SS and UE shall execute procedure P3 (for CS service) or P5 (for PS service). Next SS and UE shall execute procedure P7 (for CS service) or P9 (for PS service). Then SS and UE shall execute procedure P11 (for CS service) or P13 (for PS service).

The UE shall send a MEASUREMENT REPORT message after reaching CELL_DCH state, reporting cell 2's PCCPCH RSCP value. After 64 seconds has passed since SS receives the first MEASUREMENT REPORT message, the UE shall transmit a second MEASUREMENT REPORT message.

SS sends a MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS configures an intra-frequency measurement based on the measurement quantity PCCPCH RSCP. Parameters used in this message are: measurement identity = "1", report criteria = "event-trigger", event identity = "1g". All intra-frequency cells are removed. Cell 3 is included as new intra-frequency cell. SS checks to see that no MEASUREMENT REPORT messages are sent within the next 64 seconds (which is due to periodic reporting). SS reconfigures the downlink transmission power settings according to values in column "T1" in table 8.4.1.1A-1. The UE shall transmit a

MEASUREMENT REPORT message when it detects that the PCCPCH RSCP of cell 3 is present. SS sends another MEASUREMENT CONTROL message on the downlink DCCH to include cell 2 in the monitored cells. SS configures an intra-frequency measurement based on the measurement quantity PCCPCH RSCP. Parameters used in this message are: measurement identity = "1", report criteria = "event-trigger", event identity = "1g". The UE shall transmit a MEASUREMENT REPORT message when it detects that the PCCPCH RSCP of cell 2 and indicating cell 2 as a best cell. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is in idle mode and camped onto cell 1. The System Information Block type 11 messages to be transmitted are different from the default settings (see specific message contents). Cell 2 is included in CELL_INFO LIST.
2	↔		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	UE reaches PS-CELL_DCH or CS-CELL_DCH
3	↔		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	UE reaches PS-DCCH_DCH or CS-DCCH_DCH
4	↔		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	UE reaches PS-DCCH+DTCH_DCH or CS-DCCH+DTCH_DCH
5		SS		SS shall wait for a MEASUREMENT REPORT message
6	→		MEASUREMENT REPORT	After receiving this message, SS shall expect to receive the next MEASUREMENT REPORT message after 64 seconds
7	→		MEASUREMENT REPORT	SS shall receive consecutive MEASUREMENT REPORT messages at 64 seconds interval.
8	←		MEASUREMENT CONTROL	A measurement with "measurement identity" IE set to "1" is assigned, with the IE "CHOICE reporting criteria" set to "intra-frequency measurement reporting criteria". See specific message content for the rest of the message.
9				SS waits for 64 seconds and verifies that no further MEASUREMENT REPORT messages are detected on the uplink DCCH.
10				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.1A-1.

Step	Direction		Message	Comment
	UE	SS		
11	→		MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message triggered by cell 3 containing report the measured PCCPCH RSCP value of cell 3.
12	←		MEASUREMENT CONTROL	A MEASUREMENT CONTROL is sent to the UE to modify the list of the cells the UE shall monitor.
13	→		MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message triggered by cell 2, containing report the measured PCCPCH RSCP value of cell 2. The UE shall report event 1G for change to best cell, cell2.
14	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE Mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection	Not Present (The IE shall be absent as this is the serving cell)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	1024
- Read SFN Indicator	TRUE
- CHOICE Mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	Not present For neigbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE Mode	TDD
- Measurement quantity list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency measurement for RACH reporting	Not Present
- Maximum number of reported cells on RACH	Not Present
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE

- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64 seconds
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

MEASUREMENT REPORT (Step 6 and 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
~~- Primary CCPCH Info~~	~~Check to see if it's the same for cell 2~~
~~- PCCPCH RSCP~~	~~"Checked to see if set to within an acceptable range"~~
~~- Pathloss~~	~~Check to see if this IE is absent~~
- Cell measured results	~~Check to see if it is absent~~
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent~~Check to see if it's the same for cell 1~~
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
~~- Primary CCPCH Info~~	~~"Checked to see if set to within an acceptable range"~~
~~- PCCPCH RSCP~~	~~Check to see if this IE is absent~~
Measured Results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 8)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency cells	2 new intra-frequency cells
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	0 chips
- Read SFN Indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 3
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same code as for cell 1
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE Mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not Present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1g
- Triggering condition 1	Not present
- Triggering condition 2	Not present
- Reporting range	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present
- Hysteresis	1 dB
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	0 ms
- Amount of reporting	Not present

- Reporting interval	Not Present
- Reporting cell status	Present
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	3

MEASUREMENT REPORT (Step 11)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	(for cell 1)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
~~- Primary CCPCH Info~~	~~Check to see if it's the same for cell 1~~
~~- PCCPCH RSCP~~	~~Check to see if this IE is present~~
~~- Pathloss~~	~~Check to see if this IE is absent~~
- Cell measured results	(for cell 3)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference is included in it.
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 3
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
~~- Primary CCPCH Info~~	~~Check to see if it's the same for cell 3~~
~~- PCCPCH RSCP~~	~~Check to see if this IE is present~~
~~- Pathloss~~	~~Check to see if this IE is absent~~
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1g"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "TDD"
- Cell parameters Id	Check to see if it's the same for cell 3

MEASUREMENT CONTROL (Step 12)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	1 new intra-frequency cells
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 2
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Not Present

MEASUREMENT REPORT (Step 13)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	(for cell2)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
~~- Primary CPICH Info~~	~~Check to see if it's the same for cell 2~~
~~- PCCPCH RSCP~~	~~Check to see if this IE is present~~
~~- Pathloss~~	~~Check to see if this IE is absent~~
- Cell measured results	(for cell1)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
~~- Primary CCPCH Info~~	~~Check to see if it's the same for cell 1~~
~~- PCCPCH RSCP~~	~~Check to see if this IE is present~~
~~- Pathloss~~	~~Check to see if this IE is absent~~
- Cell measured results	(for cell 3)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference is included in it.
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 3
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
~~- Primary CCPCH Info~~	~~Check to see if it's the same for cell 3~~
~~- PCCPCH RSCP~~	~~Check to see if this IE is present~~
~~- Pathloss~~	~~Check to see if this IE is absent~~
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1g"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "TDD"
- Primary CCPCH Info	Check to see if it's the same code for cell 2

8.4.1.1A.5 Test Requirement

After step 5 the UE shall start to transmit 2 MEASUREMENT REPORT messages at 64 seconds interval. The measurement quantity "PCCPCH RSCP" of cell 2 shall be reported in these messages.

After step 8 the UE shall not transmit any MEASUREMENT REPORT messages within 64 seconds after SS has transmitted the MEASUREMENT CONTROL message in step 8.

After step 10 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, to report the PCCPCH RSCP value for cell 3. This MEASUREMENT REPORT message shall also contain IE "Event results", indicating the triggering of event '1g' by cell 3. It shall also contain the measured PCCPCH RSCP value and cell synchronisation information for cell 3, and the measured PCCPCH RSCP values for cell 1.

After step 12 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, to report the PCCPCH RSCP value for cell 2. This MEASUREMENT REPORT message shall also contain IE "Event results", indicating the triggering of event '1g' by cell 2.

3GPP TSGñT1 Meeting #25
Malta, 1th ñ 5th November 2004

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CHANGE REQUEST

⌘ **TS34.123-1** **CR** 962 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1Rel-5: Correction of 8_4_1_3A for TDD
Source:	⌘	CATT/CCSA
Work item code:	⌘	LCR TDD
Date:	⌘	010/12/2004
Category:	⌘	***F***
Release:	⌘	*Rel-5*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

1. There is no MEASUREMENT REPORT message when UE transmits from CELL_FACH to CELL_DCH in Expected Sequence, so the second test purpose in 8.4.1.3A.3 can not be tested.
2. According to the power configuration in Table 8.4.1.3A-1, no measurement report of 1g event can be triggerd when UE transmits from CELL_FACH to CELL_DCH.
3. The IEí Timeslot ISCP reporting indicatorí and IEí Proposed TGSN Reporting requiredí are omitted in System Information Block type 11 (Step 1).

Summary of change: ⌘

1. A new step 10 by which a MEASUREMENT REPORT message is sent out when UE transmits from CELL_FACH to CELL_DCH is added in Expected Sequence so that the second test purpose in 8.4.1.3A.3 can be tested.
2. In System Information Block type 11 (Step 1), the report criteria is changed to Periodical reporting criteria from Event Trigger Reporting Mode in order to make sure that there is measurement report when UE transmits from CELL_FACH to CELL_DCH in case of configuration in Table 8.4.1.3A-1.
3. The message content of MEASUREMENT REPORT (Steps 10) is added to correspond with item 1.
4. The description corresponding with item 1 is added in 8.4.1.3A.5 of Test Requirement.
5. The IEí Timeslot ISCP reporting indicatorí and IEí Proposed TGSN Reporting requiredí are added in System Information Block type 11 (Step 1).

Consequences if ⌘ The test case will not executed rightly for TDD.

not approved:	

Clauses affected:	⌘	8.4.1.3A			
Other specs affected:	⌘	**Y**	**N**	Other core specifications	⌘
				Other core specifications	
		X		Test specifications	
				O&M Specifications	
Other comments:	⌘	The CR is only connected with TDD test cases.			

8.4.1.3A Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_FACH state (TDD)

8.4.1.3A.1 Definition

8.4.1.3A.2 Conformance requirement

The UE shall obey the follow rules for different measurement types after transiting from idle mode to CELL_FACH state:

Upon transition from idle mode to CELL_FACH state, the UE shall:

1> begin or continue monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11, TS 25.331).

The purpose of the measurement reporting procedure is to transfer measurement results from the UE to UTRAN.

In CELL_FACH state, the UE shall:

1> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing traffic volume measurement or UE positioning measurement that is being performed in the UE;

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

In TDD, if the Radio Bearer associated with the MEASUREMENT_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement is mapped on transport channel of type USCH, the UE shall:

1> initiate the "PUSCH CAPACITY REQUEST" procedure instead of transmitting a MEASUREMENT REPORT (TDD Only).

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

1> set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT_IDENTITY;

1> set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY; and

2> if all the reporting quantities are set to "false":

3> not set the IE "measured results".

1> set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the "Additional measurements list" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report; and

2> if more than one additional measured results are to be included:

3> include only the available additional measured results, and sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message.

1> if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):

2> set the IE "Event results" according to the event that triggered the report.

The UE shall:

1> transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:

1> the procedure ends.

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 in TS 25.331 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

3> if, according to its measurement capabilities, the UE does not require compressed mode to perform the measurements:

4> if the measurement is valid in the current RRC state of the UE:

5> begin measurements according to the stored control information for this measurement identity.

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

1> clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> if the UE "Additional Measurement List" is present:

2> if the received measurement configuration in this MEASUREMENT CONTROL message, or any measurement identities in the "Additional Measurement List" do not all have the same validity:

3> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> and the procedure ends.

Reference

TS 25.331, clauses 8.4.1.9.1, 8.4.2, 8.4.1.3

8.4.1.3A.3 Test Purpose

1. To confirm that the UE begins or continues to monitor cells listed in IE "intra-frequency cell info list" of System Information Block type 11 or 12 messages after it has entered CELL_FACH state from idle mode.

2. To confirm that the UE applies the reporting criteria stated in "intra-frequency measurement reporting criteria" IE in System Information Block Type 11 or 12 in a subsequent transition to CELL_DCH state.

3. To confirm that the UE reports measured results on RACH messages, if it receives IE "Intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" from System Information Block Type 11 or 12 upon a transition from idle mode to CELL_FACH state.

8.4.1.3A.4 Method of test

Initial Condition

System Simulator: 2 cells. Cell 1 and cell 2 are active.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.3A-1 illustrates the downlink power to be applied for the 2 cells in this test case.

Table 8.4.1.3A-1

Parameter	Unit	Cell 1	Cell 2
UTRA RF Channel Number		Ch. 1	Ch. 1
PCCPCH RSCP	dBm	-64	-74

The UE is initially in idle mode and camps on cell 1. The System Information Block type 11 are modified compared to the default settings to prevent reporting of "Cell synchronisation information" and also to include cell 2 into the IE "intra-frequency cell info list".

SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. SS and UE shall execute procedure P6. Next SS and UE shall execute procedure P10. Then SS and UE shall execute procedure P14. SS starts timer T305 and waits until timer T305 expires, the UE shall send a CELL UPDATE message on the CCCH which includes the measured value of cell 1's PCCPCH RSCP in IE "Measured results on RACH". SS then replies with CELL UPDATE CONFIRM message on the downlink DCCH, without changing the physical channel resources.

SS transmits PHYSICAL CHANNEL RECONFIGURATION message, and allocates dedicated physical channels to the UE. The UE shall transit to CELL_DCH state and then send a MEASUREMENT REPORT message, correctly stating the measurement identity. The measurement identity indicated shall match the value that was previously broadcast on System Information Block type 11 messages when the UE was still in idle mode. The IE "Measured results" in the MEASUREMENT REPORT messages shall contain measured values of cell 1, 2's PCCPCH RSCP.

NOTE: The Radio Bearer associated with the MEASUREMENT_IDENTITY fulfilling the reporting criteria for an ongoing traffic volume measurement must not be mapped on transport channel of type USCH

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 1, System Information Block type 11	The UE is in idle mode and camps onto cell 1. System Information Block type 1 and 11 to be transmitted are different from the default settings (see specific message contents)
2	↔		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	SS prompts the test operator to make an outgoing call.
3	↔		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	UE reaches PS-DCCH FACH
4	↔		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	UE reaches PS-DCCH+DTCH FACH
5				SS monitors the uplink DCCH to confirm that no MEASUREMENT REPORT messages are detected. SS waits for 5 minutes (for the expiry of T305 timer).
6	→		CELL UPDATE	This message shall contain IE "Measured results on RACH" reporting the measured PCCPCH RSCP for cell 1.
7	←		CELL UPDATE CONFIRM	SS does not change the physical channel configurations.
8	←		PHYSICAL CHANNEL RECONFIGURATION	SS assigns dedicated physical resources.
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall transit to CELL_DCH state.
10	→		MEASUREMENT REPORT	UE shall begin to report cell 1,2's PCCPCH RSCP value.The measurement identity shall match the one that is broadcast for use in CELL_DCH in SIB11 in step 1.

Specific Message Content

System Information Block type 1 (Step 1)

Information Element	Value/Remarks
UE Timers and constants in connected mode - T305	 5 minutes.

System Information Block type 11 (Step 1)

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	
- $Qoffset1_{s,n}$	Not Present (Default is 0 dB)
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	TDD
- Qrxlevmin	-103dBm
- Cells for measurement	Not Present
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- CHOICE Mode	TDD
- Measurement quantity list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	TDD
- Reporting quantity	PCCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present

- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Periodical reporting~~Event trigger~~
- CHOICE report criteria	Periodic reporting criteria~~Intra-frequency measurement reporting criteria~~
- Amount of reporting~~ - Parameters required for each event~~	Infinity
- Reporting interval~~ Intra-frequency event identity~~	64 seconds~~1e~~
~~- CHOICE mode~~	~~TDD~~
~~- Primary CCPCH~~	~~Present~~
~~- W~~	~~0.0~~
~~- Hysteresis~~	~~1.0 dB~~
~~- Time to trigger~~	~~60 ms~~
~~- Amount of reporting~~	~~absent~~
~~- Reporting interval~~	~~absent~~
~~- Reporting Cell Status~~	
~~- CHOICE reported cell~~	~~Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency~~
~~- Maximum number of reported cells~~	~~2~~
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

CELL UPDATE (Step 6)

Information Element	Value/remark
U-RNTI	Check to see if set to same U-RNTI value assigned in the execution of procedure P6.
START list	Checked to see if this IE is present
AM_RLC error indication(RB2, RB3 or RB4)	FALSE
AM_RLC error indication(RB>4)	FALSE
Cell update cause	Check to see if set to 'Periodical cell update'
Failure cause	Check to see if this IE is absent
Measured results on RACH	
- Measurement result for current cell	
- CHOICE mode	TDD
- Primary CCPCH RSCP	Checked to see if set to within an acceptable range.
- Measurement results for monitored cells	Checked to see if this IE is absent.

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_FACH".

MEASUREMENT REPORT (Steps 10)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

8.4.1.3A.5 Test Requirement

After step 5 the UE shall not transmit any MEASUREMENT REPORT messages on the uplink DCCH.

After step 6 the UE shall initiate cell update procedure by transmitting CELL UPDATE message on CCCH. In this message, IE "cell update cause" shall be set to "periodic cell update". It shall include IE "measured results on RACH", containing the measurement value for cell 1's PCCPCH RSCP.

After step 9 the UE shall transmit MEASUREMENT REPORT messages. In these messages, cell 1,2's PCCPCH RSCP value shall be reported in IE "Measured results". The IE "measurement identity" in this message shall match the IE "Intra-frequency measurement identity" found in System Information Block type 11 messages transmitted in step 1. The MEASUREMENT REPORT messsages shall not contain IE "Event results".

3GPP TSGñT1 Meeting #25
Malta, 1th ñ 5th November 2004

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CHANGE REQUEST

⌘ **TS34.123-1** **CR** 963 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1Rel-5: Correction of 8_4_1_5A for TDD
Source:	⌘	CATT/CCSA
Work item code:	⌘	LCR TDD
Date:	⌘	010/12/2004
Category:	⌘	***F***
Release:	⌘	*Rel-5*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

1. In Table 8.4.1.5A-1, the current power value for T1 is not suitable for the test procedure. A cell update caused by periodic update is expected. But a cell update caused by cell re-selection will occur according to the current configuration since the power value of cell 3 is better than cell 1.
2. In Table 8.4.1.5A-1, additional T2 and corresponding power values for cell 1, cell 2 and cell 3 is added to trigger measurement report of ë1gí event in step 12.
3. In Expected Sequence in 8.4.1.5A.4, the measurement report in step 12 will not be sent because ë1gí event will not be triggered in current procedure.
4. In test procedure description in 8.4.1.5A.4, there is no 1g event trigger process.
5. In MEASUREMENT REPORT (Step 3) and MEASUREMENT REPORT (Step 12) in 8.4.1.5A.4, there are some errors in ëIEí of ëCell measured resultsí.
6. In System Information Block type 12 (Step 6), the ëIEí of ëTimeslot ISCP reporting indicatorí is omitted.
7. In MEASUREMENT REPORT (Step 12), the cells in Intra-frequency measurement results list is not sorted in descending order by the measurement quantity.

Summary of change: ⌘

1. In Table 8.4.1.5A-1, the power of cell 3 is changed to ë70í from ë55í.
2. In Table 8.4.1.5A-1, additional T2 and corresponding power values for cell 1, cell 2 and cell 3 as ë70í,í-85í and í-60í is added to trigger measurement report of ë1gí event in step 12.
3. In Expected Sequence in 8.4.1.5A.4, additional step 11a is added to adjust cellsí power in T2 to trigger measurement report of ë1gí event in step 12.

4. In test procedure description in 8.4.1.5A.4, the process of SS reconfiguration and 1g event trigger is added.
5. In MEASUREMENT REPORT (Step 3) and MEASUREMENT REPORT (Step 12) in 8.4.1.5A.4, the errors in "IE" of "Cell measured results" are corrected.
6. In System Information Block type 12 (Step 6), the "IE" of "Timeslot ISCP reporting indicator" is added.
7. In MEASUREMENT REPORT (Step 12), the cells in Intra-frequency measurement results list is changed to sort in descending order by the measurement quantity.

Consequences if not approved:	⌘	The test case will not executed rightly for TDD.

Clauses affected:	⌘	8.4.1.5A

		Y	N		
Other specs affected:	⌘			Other core specifications	⌘
		X		Test specifications	
				O&M Specifications	

Other comments:	⌘	The CR is only connected with TDD test cases.

8.4.1.5A Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state (TDD)

8.4.1.5A.1 Definition

8.4.1.5A.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

1> stop intra-frequency type measurement reporting;

1> if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects a cell other than that indicated by this IE; or

1> if the transition is due to a reconfiguration message which does not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD); or

1> if the transition is not due to a reconfiguration message:

2> delete the measurements of type intra-frequency associated with the variable MEASUREMENT_IDENTITY.

1> begin monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11 in [8] TS 25.331).

Reference

3GPP TS 25.331, clause 8.4.1.6.1, 8.4.1.7.1

8.4.1.5A.3 Test Purpose

1. To confirm that the UE stops performing intra-frequency measurement reporting specified in a MEASUREMENT CONTROL message, when it moves from CELL_DCH state to CELL_FACH state.

2. To confirm that the UE reads the System Information Block type 11 or 12 messages when it enters CELL_FACH state from CELL_DCH state, and starts to monitor the cells listed in the IE "intra-frequency cell info list".

3 To confirm that the UE performs measurements on uplink RACH transmissions and appends the measured results in RACH messages, when it receives IE "intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" in the System Information Block type 11 or 12 messages.

4. To confirm that the UE applies the reporting criteria in IE "intra-frequency reporting criteria" in System Information Block Type 11 or 12 messages following a state transition from CELL_FACH to CELL_DCH, if no intra-frequency measurements applicable to CELL_DCH are stored.

8.4.1.5A.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1 and cell 2 are active, while cell 3 is switched off.

UE: PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Specific Message Contents

For MASTER IFORMATION BLOCK and system information block 11 of Cell 1 (gives IE's which are different from defaults given in 34.108 subclause 6.1) to be transmitted before idle update preamble.

MASTER INFORMATION BLOCK

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/Remarks
MIB Value Tag	1

System Information Block type 11

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary PCCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	Not present
- Cells for measurement	Not Present
-Intra-frequency measurement quantity	Not Present
-Intra-frequency reporting quantity for RACH reporting	Not Present
-Maximum number of reported cells on RACH	Not Present
-Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

Test Procedure

Table 8.4.1.5A-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while column marked as "T1" will be applied during the test.

Table 8.4.1.5A-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Ch. 1			Ch. 1			Ch. 1		
PCCPCH RSCP	dBm	-60	-60	-70	-75	-85	-85	~~off~~ -122	-~~55~~70	-60

The UE is initially in CELL_DCH state. The System Information Block type 11 message is modified compared to the default message contents, in order to prevent the reporting of "Cell synchronisation information". No measurement to be applied by the UE in CELL_DCH state is specified in any of the System Information Block type 11 or 12 messages.

SS sends a MEASUREMENT CONTROL message to UE. In this message, the SS requests the establishment of an intra-frequency measurement for the measurement of cell 2's PCCPCH RSCP. At the same time, reporting of PCCPCH RSCP values of active set cells and monitored set cells are requested with the reporting criteria set to "periodic reporting" and "reporting interval" set to 16 seconds. The UE shall start transmitting MEASUREMENT REPORT messages at 16 seconds interval corresponding to the requested reporting event.

SS transmits PHYSICAL CHANNEL RECONFIGURATION message to move the UE to CELL_FACH. After receiving this message, the UE shall reconfigure itself and reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on RACH. SS monitors the uplink channels to verify that no MEASUREMENT REPORT messages are received.

SS reconfigures itself according to the settings in columns marked "T1" in table 8.4.1.5A-1. SS transmits System Information Block type 12 messages in cell 1, which include cell 3 into the IE "intra-frequency cell info list" and modifies SIB11 to indicate that SIB12 is now being broadcast. Ies "Intra-frequency reporting quantity for RACH Reporting" and IE "Maximum number of Reported cells on RACH" are also specified in the System Information Type 12 messages. Event type 1g reporting criterion is specified for intra-frequency measurements. SS transmit SYSTEM INFORMATION CHANGE INDICATION message to UE. SS waits until T305 has expired. The UE shall respond with a CELL UPDATE message, which comprises IE "Measured results on RACH" to report the readings of PCCPCH RSCP for cell 1 and cell 3. SS replies with CELL UPDATE CONFIRM message on the downlink DCCH. This message does not change the physical resources nor allocate any new RNTI identities. SS transmits PHYSICAL CHANNEL RECONFIGURATION message again, and configures dedicated physical channel for both uplink and downlink directions. The UE shall send PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and return to CELL_DCH state. SS listens to the uplink DCCH for MEASUREMENT REPORT messages.

SS reconfigures itself according to the settings in columns marked "T2" in table 8.4.1.5A-1. Event 1g is triggered since the best cell is changed to cell 3 from cell 1.

SS shall receive the MEASUREMENT REPORT messages.

SS verifies that it includes PCCPCH RSCP values of the cells 1, 2 and 3 in IE "Cell measured results" and the triggering of event '1g' on cell 3 in IE "Event results".

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is in PS-DCCH+DTCH_DCH (state 6-10) in cell 1.
2	←		MEASUREMENT CONTROL	SS requests for measurement of cell 2~~'s~~ PCCPCH RSCP value and reporting of PCCPCH RSCP values of active cell and monitored set cell.
3	→		MEASUREMENT REPORT	UE shall send periodic report at 16 seconds interval.
4	←		PHYSICAL CHANNEL RECONFIGURATION	SS moves the UE to CELL_FACH state.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE reaches CELL_FACH state.
6	←		Master Information Block System Information Block type 11, 12	SS reconfigures itself according to the settings stated in column "T1" of table 8.4.1.5A-1. SIB 11 is modified to indicate that SIB12 is now broadcast and includes cell 2 as a neighbour cell. SIB 12 indicates that cell 3 is included in the IE "intra-frequency cell info list". Event 1g is also configured for cell 3. SS waits for 1 minute and verifies that no MEASUREMENT REPORT messages are detected on the uplink.
7	←		SYSTEM INFORMATION CHANGE INDICATION	SS waits until T305 has expired.
8	→		CELL UPDATE	UE shall transmit this message with measured results on RACH channels for cell 1 and cell 3 present in this message.
9	←		CELL UPDATE CONFIRM	No changes in physical resource allocation and RNTI identities.
10	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures dedicated physical channels.
11	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall transit to CELL_DCH state.
11a				SS reconfigures itself according to the settings stated in column ìT2î of table 8.4.1.5A-1.
12	→		MEASUREMENT REPORT	The UE shall report event 1G for change to best cell, cell3.

Specific Message Content

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	5
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Set to same as used for cell 2
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE mode	TDD
- Measurement quantity list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
CHOICE MODE	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
CHOICE MODE	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds

MEASUREMENT REPORT (Step 3)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 1
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
~~- Primary CCPCH Info~~	~~Check to see if it's the same for cell 1~~
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell 2
- Proposed TGSN	Check to see if this IE is absent
- Primary CCPCH RSCP	Check to see if this IE is present
~~- Primary CCPCH Info~~	~~Check to see if it's the same for cell 2~~
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured result list	Check to see if this IE is absent
Event results	Check to see if this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)"

MASTER INFORMATION BLOCK (Step 6)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/Remarks
MIB Value Tag	2

System Information Block type 11 (Step 6)

Information Element	Value/remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary PCCPCH Info	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary PCCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	
- $Qoffset_{s,n}$	0 dB
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	TDD
- Qrxlevmin	-103 dBm
- Cells for measurement	Not Present
-Intra-frequency measurement quantity	Not Present
-Intra-frequency reporting quantity for RACH reporting	Not Present
-Maximum number of reported cells on RACH	Not Present
-Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 6)

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	6
- Intra-frequency cell cells	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.3 (TDD)" in clause 6.1.4 of TS 34.108
- Cell selection and Re-selection info	
- $Qoffset_{s,n}$	0dB
- Maximum allowed UL TX power	30dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	TDD
- Qrxlevmin	-103dBm
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE mode	TDD
- Measurement list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	TDD
- Reporting quantity	PCCPCH RSCP
- Maximum number of reported cells on RACH	Current cell + best neighbour
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
- Intra-frequency event identity	1g
- Reporting range constant	20.0 dB
- W	0.0
- Hysteresis	1.0 dB
- Time to trigger	60 ms
- Amount of reporting	absent
- Reporting Interval	absent
- Reporting cell status	

- CHOICE *reported cell*	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not present

SYSTEM INFORMATION CHANGE INDICATION (Step 7)

Information Element	Value/Remarks
BCCH modification info - MIB Value tag	 2

CELL UPDATE (Step 8)

Information Element	Value/remark
U-RNTI	Check to see if set to the same value assigned during the execution of procedure P3 or P5.
START list	Checked to see if this IE is present
AM_RLC error indication(RB2, RB3 or RB4)	FALSE
AM_RLC error indication(RB>4)	FALSE
Cell update cause	Check to see if it is set to "Periodical cell update"
Failure case	Check to see if it is absent
Measured results on RACH	
- Measurement result for current cell	
- SFN-SFN observed time difference	Not Checked
- CHOICE mode	TDD
- Cell parameters Id	Check to see if the same as cell 1.
- PCCPCH RSCP	Check to see if it is present
- Measurement results for monitored cells	
- SFN-SFN observed time difference	Not Checked
- CHOICE mode	TDD
- Cell parameters Id	Check to see if the same as cell 3.
- PCCPCH RSCP	Check to see if it is present

PHYSICAL CHANNEL RECONFIGURATION (Step 10)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_DCH from CELL_FACH in PS)".

MEASUREMENT REPORT (Step 12)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results list	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell ~~1~~3
- Proposed TGSN ~~Reporting required~~	Check to see if this IE is absent
- Primary CCPCH RSCP~~PCCPCH RSCP reporting indicator~~	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if it is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same for cell ~~2~~1
- Proposed TGSN Reporting required	Check to see if this IE is absent
- Primary CCPCH RSCP~~PCCPCH RSCP reporting indicator~~	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Timeslot list	Check to see if it is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Cell parameters Id	Check to see if it's the same for cell ~~3~~2
- Proposed TGSN Reporting required	Check to see if this IE is absent
- PCCPCH RSCP reporting indicator	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Event results	Check to see if this set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1g'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'TDD'
- Cell parameters id	Check to see if it's the same for cell 3

8.4.1.5A.5 Test Requirement

After step 2, the UE shall start to transmit MEASUREMENT REPORT messages at 16 seconds interval. The message shall contain IE "measured result" to report cell 2's PCCPCH RSCP value.

After step 5, the UE shall not send any MEASUREMENT REPORT messages containing reporting quantities requested in MEASUREMENT CONTROL messages in step 2.

After step 7, the UE shall perform a cell update procedure and transmit a CELL UPDATE message. In this message, measured values PCCPCH RSCP for cell 1 and cell 3 shall be included in the IE "measured results on RACH".

After step 12, the UE shall apply the intra-frequency measurement reporting criteria" received in System Information Block type 12 messages of step 6. It shall send MEASUREMENT REPORT messages. In these messages, triggering of event '1g' shall be reported in IE "Event results" with IE " Cell parameters Id " containing the same for cell 3.

The message shall contain IE "measured result" to report PCCPCH RSCP values of cell 1, 2 and 3.

3GPP TSGñT1 Meeting #25
Malta, 1th ñ 5th November 2004

Tdoc ⌘T1-041572

CR-Form-v7

CHANGE REQUEST

⌘ **TS34.123-1 CR** 964 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1Rel-5: Correction of 8_4_1_7A for TDD
Source:	⌘	CATT/CCSA
Work item code:	⌘	LCR TDD
Date:	⌘	010/12/2004
Category:	⌘	***F***
Release:	⌘	*Rel-5*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

The current test case design in 8.1.4.7A for TDD Intra-frequency measurement is incomplete and un-realizable. It is shown in the aspects as followed:

1. As for the Expected Sequence in 8.4.1.7A.4, the procedure is not perfect, because the testing procedure for cell re-selection is not included.
2. In step 8 of the Expected Sequence in 8.4.1.7A.4, a MEASUREMENT REPORT message configured in the measurement identity 10 shall be sent.
3. In step 15,22,28 and 32 of the Expected Sequence in 8.4.1.7A.4, the MEASUREMENT REPORT message can not be sent because Ig event can not be triggered.
4. The test purposes defined in 8.4.1.7A.3 can not be completed because of the incompleteness and un-implementing of the test procedure.
5. The power configuration in Table 8.4.1.7A-1 is not suitable for testing procedure.
6. The description of test procedure in 8.4.1.7A.4 should keep in accord with the new procedure design.
7. The message contents in 8.4.1.7A.4 should keep accord with the new procedure design.

Summary of change: ⌘

The whole content of 8.1.4.7A is replaced by new version according new test procedure since great changes are made. The main changes comparing with the previous version are given as followed:

1. In the Expected Sequence in 8.4.1.7A.4, the numbers of test steps are changed to keep aligned with FDD.
2. Step 3a is added in the Expected Sequence in 8.4.1.7A.4 to avoid a un-

		expected cell re-selection process. 3. In step 5 of the Expected Sequence, a periodic measurement is setup instead of 1g event mode. 4. In the Expected Sequence, step 6a and 6b are added to setup a measurement report of cell 1 with measurement identity of 10. 5. In the Expected Sequence, step 9c is added to trigger a measurement report of cell 2 with measurement identity of 10. 6. In the Expected Sequence, step 9e is added to change cell 1 to be the best cell. 7. In the Expected Sequence, step 9f is added to setup a measurement report of cell 1 with measurement identity of 10. 8. In step 10 of the Expected Sequence, a periodic measurement is setup instead of 1g event mode. 9. In the Expected Sequence in 8.4.1.7A.4, new test steps from 18 to 28 are added for cell re-selection testing. 10. The message content in MEASUREMENT CONTROL (Step 5) is changed to setup a periodic measurement instead of 1g event measurement. 11. The message content in MEASUREMENT REPORT(Step 6), and MEASUREMENT REPORT(Step 14,14f and 17a) are change to make a periodic measurement report instead of 1g event measurement report. 12. The power configuration in Table 8.4.1.7A-1 is changed to meet the need of new testing procedure. 13. The description of test procedure in 8.4.1.7A.4 is changed to keep in accord with the new test procedure.
Consequences if not approved:	⌘	The test case will not executed rightly for TDD.

Clauses affected:	⌘	8.4.1.7A			
Other specs affected:	⌘	**Y** / **N** ☐ / ☐ **X** / ☐ ☐ / ☐	Other core specifications Test specifications O&M Specifications	⌘	
Other comments:	⌘	The CR is only connected with TDD test cases.			

8.4.1.7A Measurement Control and Report: Intra-frequency measurement for transition from CELL_FACH to CELL_DCH state (TDD)

8.4.1.7A.1 Definition

8.4.1.7A.2 Conformance requirement

Upon transition from CELL_FACH to CELL_DCH state:

1> if intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> if the cell in which the UE transited from CELL_FACH state is included in the active set for the CELL_DCH state, the UE shall:

3> resume the measurement reporting.

2> otherwise:

3> the UE should not resume the measurement reporting. If the UE does not resume the measurement reporting, the measurement shall be restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

Ö

Upon cell reselection while in CELL_FACH/CELL_PCH/URA_PCH state and the cell reselection has occurred after the measurement control information was stored, the UE shall:

1> delete all measurements of type intra-frequency, inter-frequency, and inter-RAT associated with the variable MEASUREMENT_IDENTITY;

Ö

1> delete the traffic volume measurements that have not been set up or modified through a MEASUREMENT CONTROL message.

Ö

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

3> if the UE is in CELL_FACH state:

4> the UE behaviour is not specified.

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency:

Ö

2> for measurement type "inter-frequency measurement" that requires measurements only on the same frequency as the actually used frequency:

Ö

2> for measurement type "UE positioning measurement":

Ö

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

5> if the UE is in CELL_FACH state:

6> the UE behaviour is not specified.

4> if measurement type is set to "intra-frequency measurement", for any of the optional IEs "Intra-frequency measurement objects list", "Intra-frequency measurement quantity", "Intra-frequency reporting quantity", "Measurement Validity", "report criteria" and "parameters required for each event" (given "report criteria" is set to "intra-frequency measurement reporting criteria") that are present in the MEASUREMENT CONTROL message:

Ö

5> replace the corresponding information (the IEs listed above and all their children) stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

5> leave all other stored information elements unchanged in the variable MEASUREMENT_IDENTITY.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

"If the IE "Reporting Cell Status" is received, the UE shall set the IE "Measured Results" in MEASUREMENT REPORT as follows. The UE shall:

1> for intra-frequency measurement and inter-frequency measurement:
2> include the IE "Cell Measured Results" for cells (excluding cells of another RAT) that satisfy the condition (such as "Report cells within active set") specified in the IE "Reporting Cell Status", in descending order by the measurement quantity"

If the IE "Cells for measurement" has been included in a MEASUREMENT CONTROL message, only monitored set cells explicitly indicated for a given intra-frequency (resp. inter-frequency, interRAT) measurement by the IE "Cells for measurement" shall be considered for measurement. If the IE "Cells for measurement" has not been included in a MEASUREMENT CONTROL message, all of the intra-frequency (resp. inter-frequency, inter RAT) cells stored in the variable CELL_INFO_LIST shall be considered for measurement. The IE "Cells for measurement" is not applicable to active set cells or virtual active set cells e.g. when the triggering condition refers to active set cells, the UE shall consider all active set cells in the CELL_INFO_LIST for measurement irrespective if these cells are explicitly indicated by the IE "Cells for measurement".

Reference

3GPP TS 25.331, clause 8.4.1.3, 8.4.1.6a, 8.4.1.7.1, 8.4.0 and 8.6.7.9

8.4.1.7A.3 Test Purpose

- To confirm that UE retrieves stored measurement control information for intra-frequency measurement type with "measurement validity" assigned to "CELL_DCH", after it enters CELL_DCH state from CELL_FACH state.
- To confirm that the UE continues to monitor the neighbouring cells listed "intra-frequency cell info" IE in the System Information Block type 11 or 12 messages, if no intra-frequency measurements applicable to CELL_DCH are stored.
- To confirm that the UE transmits MEASUREMENT REPORT messages if reporting criteria stated in IE "intra-frequency measurement reporting criteria" in System Information Block type 11 or 12 messages are fulfilled.
- To confirm that a MEASUREMENT CONTROL message received in CELL_DCH state overrides the measurement and associated reporting contexts maintained in the UE by virtue of System Information Block type 11 or 12 messages.
- To confirm that the UE delete all measurements of type intra-frequency upon cell reselection while in CELL_FACH.

8.4.1.7A.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1, cell 2 and cell 3 are active.

UE: PS-DCCH+DTCH_FACH (state 6-11).

Test Procedure

Table 8.4.1.7A-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.7A-1

Para-meter	Unit	Cell 1							Cell 2							Cell 3						
		T0	T1	T2	T3	T4	T5	T6	T0	T1	T2	T3	T4	T5	T6	T0	T1	T2	T3	T4	T5	T6
UTRA RF Channel Number		Ch. 1							Ch. 1							Ch. 1						
PCCPCH Ec	dBm /1.28 MHz	-60	-70	-60	-70	-60	-70	-75	-70	-60	-70	-60	-70	-60	-70	-75	-75	-75	-75	-75	-75	-60

The UE is brought to CELL_FACH state in cell 1. (step 1) SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

SS sends a RADIO BEARER RECONFIGURATION message to UE (step2), and configures dedicated physical channels on both uplink and downlink directions. The UE shall move to CELL_DCH state and then return RADIO BEARER RECONFIGURATION COMPLETE message (step3). SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T1" in table 8.4.1.7A .The UE shall send a MEASUREMENT REPORT message containing IE ì Measured resultsî to report cell 2ís PCCPCH RSCP value and IE ì event resultsî to report triggering of event type ì 1gî (step 4). After receiving the MEASUREMENT REPORT message, SS transmits a MEASUREMENT CONTROL message with cell 3 included in the IE ì new intra-frequency cell infoî (step 5). After receiving such a message, the UE shall transmit another set of MEASUREMENT REPORT message for measurement identity = 11. SS verifies that measurement readings for cell 1,2,3 ës PCCPCHCH RSCP are reported in IE ì cell measured resultsî in this message (step 6). SS modifies the downlink transmission power of the respect cells according to the settings in columns ì T2î in table 8.4.1.7A-1. The UE shall send a MEASUREMENT REPORT message

containing IE ì Measured resultsî to report cell 1ís PCCPCH RSCP value and IE ì event resultsî to report triggering of event type ì 1gî (step 6b).Next, SS sends a PHYSICAL CHANNEL RECONFIGURATION message (step 7). SS configures common physical channels for both the uplink and the downlink directions. The UE shall transit to CELL_FACH state and then reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 8). SS waits and checks the uplink RACH to confirm that no MEASUREMENT REPORT messages are received (step 9).

SS transmits then a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH state (step 9a). The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS (step 9b). SS modifies the downlink transmission power of the respect cells according to the settings in columns ì T3î in table 8.4.1.7A-1.Shortly after, a MEASUREMENT REPORT message shall be received which has been triggered by cell 2, i.e. the UE shall have deleted the measurement configured through the MEASUREMENT CONTROL message of step 5, and instead apply the measurement configured in SIB12: a MEASUREMENT REPORT message with measurement identity 10 shall be received while no such message with measurement identity 11 shall be sent by the UE (step 9c). SS modifies the downlink transmission power of the respect cells according to the settings in columns ì T4î in table 8.4.1.7A-1. The UE shall send a MEASUREMENT REPORT message containing IE ì Measured resultsî to report cell 1ís PCCPCH RSCP value and IE ì event resultsî to report triggering of event type ì 1gî.

SS transmits MEASUREMENT CONTROL message on the downlink DCCH, to configure periodic intra-frequency measurements with validity CELL_DCH (step 10). The UE shall send a MEASUREMENT REPORT message (with IE ì Measurement identityî = 12) to the SS (step 14).

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to move it to CELL_FACH state (step 14a). The UE shall move to that state and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS (step 14b). SS shall wait and check that no MEASUREMENT REPORT messages are detected on the uplink DCCH (step 14c).

SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH state (step 14d). The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS (step 14e). Shortly after, a MEASUREMENT REPORT message shall be received, i.e the UE shall have retrieved the measurement configured through the MEASUREMENT CONTROL message of step 10, instead of the ones that are broadcast in SIB12 (step 14f).

Following the reception of the MEASUREMENT REPORT message, SS commands the UE using MEASUREMENT CONTROL message to release measurement control information stored in ì measurement identityî = 12 (step 15). Thereafter, SS verifies that no MEASUREMENT REPORT messages are detected on the uplink DCCH (step 16). After this requirement is satisfied, SS sends MEASUREMENT CONTROL on the downlink DCCH once more (step 17). This message is identical to the one sent in step 10 (see specific message content). A periodical MEASUREMENT REPORT message shall be received from the UE (step 17a).

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH and configures common physical channel (step 18). The UE shall transit to CELL_FACH state and then respond with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 19). SS monitors the uplink DCCH once more to verify that no MEASUREMENT REPORT messages are detected (step 20). System information block type 11 and System Information Block type 12 for cell 2 shall be different from the default settings according to what is defined in the specific message content part of this section (step 21). SS modifies the downlink transmission power of the respect cells according to the settings in columns ì T5î in table 8.4.1.7A-1. The UE shall initiate a cell re-selection procedure. This is verified in the SS when a CELL UPDATE message is received on the uplink CCCH with the ì cell update causeî IE set to ì cell reselectionî (step 22). SS transmits a CELL UPDATE CONFIRM message, which includes ì New C-RNTIî, on the DCCH (step 23). Then the UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM message (step 23a). Next, SS sends a RADIO BEARER RECONFIGURATION message on the downlink DCCH, assigning dedicated physical channels in both uplink and downlink directions (step 24). The UE shall respond with a RADIO BEARER RECONFIGURATION COMPLETE message and then return to CELL_DCH state (step 25). SS modifies the downlink transmission power of all cells according to the settings in columns ì T6î in table 8.4.1.7A-1. UE shall then send MEASUREMENT REPORT messages reporting cell 3ís PCCPCH RSCP according to the content in System Information Block type 12 messages broadcasted in cell 2 (step 21).SS transmits a MEASUREMENT CONTROL message (step 27) whereby the measurement identity is set to the same value as that in the SIB type 12 messages (step 21). UE shall send MEASUREMENT REPORT message (step 28) reporting cell 1,2,3ís PCCPCH RSCP according to the MEASUREMENT CONTROL message (step 27).

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11 and 12	UE is initially in PS-DCCH+DTCH_FACH (state 6-11) in cell 1. System Information Block type 11 and 12 messages are changed with respect to the default contents according to the descriptions in ìSpecific Message Contentsî clause.
1a	←		SYSTEM INFORMATION CHANGE INDICATION	
2	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
3a				SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T1" in table 8.4.1.7A
4	→		MEASUREMENT REPORT	Reports cell 2's PCCPCH RSCP measurement value, with ìmeasurement identityî IE set to ì10î.
5	←		MEASUREMENT CONTROL	A periodic measurement is setup with measurement identity of 11. Cell 3 is added to the list of monitored set of the UE.
6	→		MEASUREMENT REPORT	SS shall receive a MEASUREMENT REPORT message after the period set in step 5 in which the report for cell 1,cell 2 and cell 3 are included.
6a				SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T2" in table 8.4.1.7A
6b	→		MEASUREMENT REPORT	Cell 1 shall trigger the event 1g and a MEASUREMENT REPORT message shall be sent to SS with the measurement identity 10.
7	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
9				SS waits and checks that no MEASUREMENT REPORT messages are sent by UE.
9a	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
9b	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
9b1				SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T3" in table 8.4.1.7A
9c	→		MEASUREMENT REPORT	Cell 2 shall trigger the event 1g and a MEASUREMENT REPORT message shall be sent to SS with the measurement identity 10.

Step	Direction		Message	Comment
	UE	SS		
9d				SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T4" in table 8.4.1.7A
9e	→		MEASUREMENT REPORT	Cell 1 shall trigger the event 1g and a MEASUREMENT REPORT message shall be sent to SS with the measurement identity 10.
10	←		MEASUREMENT CONTROL	SS instructs the UE to setup intra-frequency measurement with measurement identity of 12. Measurement validity" IE is set to CELL_DCH state.
11				
12	←		Void	
13	→		Void	
14	→		MEASUREMENT REPORT	UE reports cell 1 and cell 2's measured results for PCCPCH RSCP, with ìmeasurement identityî IE set to ì12î.
14a	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
14b	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
14c				SS waits and check that no MEASUREMENT REPORT messages are sent by the UE.
14d	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
14e	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
14f	→		MEASUREMENT REPORT	UE shall have retrieved and resumed the measurement set up through the MEASUREMENT CONTROL of step 10.The ìmeasurement identityî IE shall be set to ì12î.
15	←		MEASUREMENT CONTROL	Terminate all the intra-frequency measurement and reporting activities related to "measurement identity" = 12.
16				SS waits and verifies that UE stop transmitting MEASUREMENT REPORT messages.
17	←		MEASUREMENT CONTROL	This message is the same as in step 10.
17a	→		MEASUREMENT REPORT	UE shall transmit a MEASUREMENT REPORT message with ìmeasurement identityî IE set to ì12î.
18	←		PHYSICAL CHANNEL RECONFIGURATION	Allocates common physical channels.
19	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
20				SS checks that no MEASUREMENT REPORT messages are received.

Step	Direction		Message	Comment
	UE	SS		
21	←		System Information Block type 11 System Information Block type 12	SS sends SIB11 and SIB12 with specific values to Cell2. SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T5" in table 8.4.1.7A.
22	→		CELL UPDATE	UE shall re-selects to cell 2 and then perform a cell update procedure.
23	←		CELL UPDATE CONFIRM	UE shall stay in CELL_FACH state.
23a	→		UTRAN MOBILITY INFORMATION CONFIRM	
24	←		RADIO BEARER RECONFIGURATION	Dedicated physical channels are assigned to the UE in this message.
25	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall return to CELL_DCH state.UE shall not send Measurement Report message with ìmeasurement identityî = ëí2í.
25a				SS reconfigures the downlink transmission power settings of all cells according to column ìT6î in table 8.4.1.7A-1.
26	→		MEASUREMENT REPORT	UE begins to report cell 3's measured results for PCCPCH RSCP, with ìmeasurement identityî IE set to ì1î,event is 1g.
27	←		MEASUREMENT CONTROL	SS instructs the UE to setup period intra-frequency measurement. ìmeasurement identityî IE set to ì1î
28	→		MEASUREMENT REPORT	UE shall transmit a period MEASUREMENT REPORT message, with ìmeasurement identityî IE set to ì1î.

Specific Message Content

System Information Block type 1 (TDD)

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Master Information Block (Step 1)

Information Element	Value/Remarks
MIB Value Tag	3

System Information Block type 11 for cell 1 (Step 1)

All messages content below shall use the same content as described in default message content, with the following exception:

Information Element	Value/remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	PCCPCH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present

System Information Block type 12 for cell 1 (Step 1)

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	PCCPCH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	10
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not present
- CHOICE mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	No report
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
- Intra-frequency event identity	1g
- Reporting range constant	Not present
- W	Not present
- Hysteresis	1 dB
- Time to trigger	0
- Amount of reporting	Not Present
- Reporting Interval	Not Present
- Reporting cell status	

- CHOICE reported cells	Report cells within actived and monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 1a)

Information Element	Value/Remarks
BCCH modification info	
- MIB Value Tag	3
- BCCH modification time	Not Present

RADIO BEARER RECONFIGURATION (Step 2, Step 9a, Step 14d and Step 24)

Use the same message type found in Annex A, with condition set to A4.

MEASUREMENT REPORT (Steps 4 and 9c)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
- Cell measurement event results	
- Cell parameters Id	Check to see if it's the same code for cell 2

MEASUREMENT CONTROL (Step 5).

Information Element	Value/remark
Measurement Identity	11
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cells selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- reporting amount	infinity
- reportingInterval	64s
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Steps 6)

Information Element	Value/remark
Measurement identity	Check to see if set to 11
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 3
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT REPORT (Steps 6b)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 3
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
- Cell measurement event results	
- Cell parameters Id	Check to see if it's the same code for cell 1

PHYSICAL CHANNEL RECONFIGURATION (Steps 7, 14a and 18)

Use the same message sub-type found in clause 9 of TS 34.108, which is entitled "Packet to CELL_FACH from CELL_DCH in PS".

MEASUREMENT REPORT (Steps 9e)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
- Cell measurement event results	
- Cell parameters Id	Check to see if it's the same code for cell 1

MEASUREMENT CONTROL (Step 10 and 17).

Information Element	Value/remark
Measurement Identity	12
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	CELL DCH
- CHOICE report criteria	Periodical reporting criteria
- reporting amount	infinity
- reportingInterval	64s
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Steps 14, 14f and 17a)

Information Element	Value/remark
Measurement identity	Check to see if set to 12
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 15)

Information Element	Value/remark
Measurement Identity	12
Measurement Command	Release
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE Measurement type	Not Present
DPCH compressed mode status info	Not Present

System Information Block type 11 for cell 2 (Step 21)

All messages content below shall use the same content as described in default message content, with the following exception:

Information Element	Value/Remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	PCCPCH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell Selection and Re-selection info	Not present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell Selection and Re-selection info	Not present
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- TSTD indicator	FALSE
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- SCTD indicator	FALSE
- Primary CCPCH Tx power	Not present
- timeslot info list	Not present
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present

System Information Block type 12 for cell 2 (Step 21)

Information Element	Value/Remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	PCCPCH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Intra-frequency event identity	1g
- W	0
- Hysteresis	1dB
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	2
- Replacement activation threshold	Not Present
- Time to trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not Present
- UE internal measurement system information	Not Present

CELL UPDATE (Step 22)

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection'
Protocol error indicator	Check to see if it is absent or set to 'FALSE'
Measured results on RACH	Check to see if it is absent
Protocol error information	Check to see if it is absent

CELL UPDATE CONFIRM (Step 23)

Use the default message content of the same message type in Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 23a)

Only the message type is checked.

MEASUREMENT REPORT (Step 26)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 3
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
- Cell measurement event results	
- CHOICE mode	TDD
- Cell parameters Id	Check to see if it's the same code for cell 3

Note: Cells 2 and 3 can be received in any order

MEASUREMENT CONTROL (Step 27)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Period
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	period measurement criteria
- reporting amount	infinity
- reportingInterval	64s
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 28)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 3
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 2
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- CHOICE mode	TDD
- cell parameters identity	Check to see if it's the same code for cell 1
- proposed TGSN	Check to see if this IE is absent
- PCCPCH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- timeslotISCP_List	
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

8.4.1.7.5 Test Requirement

After step 3 the UE shall report cell 2's PCCPCH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 9 and step 11 the UE shall not transmit MEASUREMENT REPORT messages, which pertain to intra-frequency type measurement reporting.

After step 9b, the UE shall transmit a MEASUREMENT REPORT according to what is broadcast in SIB 11 and 12 of cell 1, and MEASUREMENT REPORT message pertaining to the MEASUREMENT CONTROL message that it had received in step 5.

After steps 13 and 14e, the UE shall resume the measurement and reporting activities as specified in MEASUREMENT CONTROL message received in step 10. The UE shall transmit MEASUREMENT REPORT messages, containing measured results of cell 2's PCCPCH RSCP value.

After step 15 the UE shall stop measurement activities pertaining to periodic reporting of cell 2's PCCPCH RSCP, no MEASUREMENT REPORT messages shall be detectable by the SS on the uplink DCCH.

After step 17, the UE shall transmit a MEASUREMENT REPORT message to the SS as specified in the MEASUREMENT CONTROL message received in step 17.

After step 21 the UE shall re-select to cell 2 and initiate a cell update procedure. SS shall receive a CELL UPDATE message on the uplink CCCH of cell 2, with the "cell update cause" IE stated as "cell re-selection".

After step 23, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH AM RLC.

After step 25, UE shall not send MEASUREMENT REPORT message with ì measurement identityî = ë12í.

After step 25a the UE shall report cell 3's PCCPCH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 27, UE shall send MEASUREMENT REPORT message with ì measurement identityî = ë1í.

~~8.4.1.7A Measurement Control and Report: Intra-frequency measurement for transition from CELL_FACH to CELL_DCH state (TDD)~~

~~8.4.1.7A.1 Definition~~

~~8.4.1.7A.2 Conformance requirement~~

~~Upon transition from CELL_FACH to CELL_DCH state, the UE shall:~~

~~1> retrieve each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT_IDENTITY;~~

~~1> if the IE "measurement validity" for a measurement has been assigned the value "CELL_DCH:~~

~~2> resume the measurement reporting.~~

~~1> if no intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:~~

~~2> continue monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info list" in System Information Block type 12 (or System Information Block type 11);~~

~~2> if the IE "intra-frequency measurement reporting criteria" was included in System Information Block type 12 (or System Information Block type 11):~~

~~3> send the MEASUREMENT REPORT message when reporting criteria in IE "Reporting information for state CELL_DCH" are fulfilled.~~

~~Ö~~

~~Upon cell reselection while in CELL_FACH/CELL_PCH/URA/PCH state and the cell reselection has occurred after the measurement control information was stored, the UE shall:~~

~~1> delete all measurements of type intra-frequency, inter-frequency, and inter-RAT associated with the variable MEASUREMENT_IDENTITY;~~

~~1> delete the traffic volume measurements that have not been set up or modified through a MEASUREMENT CONTROL message.~~

~~Ö~~

~~Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.~~

~~The UE shall:~~

~~1> read the IE "Measurement command";~~

~~1> if the IE "Measurement command" has the value "setup":~~

~~2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;~~

~~2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":~~

Ö

2> for measurement type "UE positioning measurement":

Ö

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> for measurement types "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency, or that require measurements on another RAT:

Ö

4> for any other measurement type:

5> replace the corresponding information stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

5> resume the measurements according to the new stored measurement control information.

3> otherwise:

Ö

2> for all optional IEs that are not present in the MEASUREMENT CONTROL message:

3> leave the currently stored information elements unchanged in the variable MEASUREMENT_IDENTITY if not stated otherwise for that IE.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

Reference

3GPP TS 25.331, clause 8.4.1.3, 8.4.1.6a and 8.4.1.7.1

8.4.1.7A.3 Test Purpose

1. To confirm that UE retrieves each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT_IDENTITY;

2. To confirm that UE resumes the measurement reporting if the IE "measurement validity" for a measurement has been assigned the value "CELL_DCH .

3. To test that UE continues monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info list" in System Information Block type 12 (or System Information Block type 11) if no intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY

4. To confirm that UE sends the MEASUREMENT REPORT message when reporting criteria in IE "Reporting information for state CELL_DCH" is fulfilled if the IE "intra-frequency measurement reporting criteria" was included in System Information Block type 12 (or System Information Block type 11).

8.4.1.7A.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1, cell 2 and cell 3 are active.

UE: PS DCCH+DTCH_FACH (state 6-11).

Test Procedure

Table 8.4.1.7A-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while column marked as "T1" will be applied during the test.

Table 8.4.1.7A-1

Para-meter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1		Ch. 1	
PCCPCH RSCP	dBm	-74	-74	-64	-69	-55	-122

The UE is initially in CELL_FACH state in cell 1. SS sends System Information Blocks 11 and 12 including measurement identity 10 for Cell 2 and event 1g. Then SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

SS send a RADIO BEARER RECONFIGURATION message to UE, and configures dedicated physical channels on both uplink and downlink directions. The UE shall move to CELL_DCH state and then return RADIO BEARER RECONFIGURATION COMPLETE message. The UE shall send a MEASUREMENT REPORT message containing IE "Measured results" to report cell 2's PCCPCH RSCP value and IE "event results" to report triggering of event type "1g".

After receiving the MEASUREMENT REPORT message, SS transmits a MEASUREMENT CONTROL message with only cell 3 included in the IE "intra-frequency cell info". After receiving this message, the UE shall transmit another set of MEASUREMENT REPORT message for measurement identity 11. SS verifies that only measurement readings for cell 3 's PCCPCH RSCP are report in IE "cell measured results" in these message. Cell 3 shall also trigger event 1g for the measurement that the UE had stored from system information.

SS reconfigures the downlink according to values "T1" and sends new System Information Blocks 11 and 12.

SS sends PHYSICAL CHANNEL RECONFIGURATION message. SS configures common physical channels for both the uplink and the downlink directions. The UE shall transit to CELL_FACH state and then reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE. SS waits and checks the uplink RACH to confirm that no MEASUREMENT REPORT messages are received.

SS transmits then a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH. The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS. Shortly after, a MEASUREMENT REPORT message shall be received that has been triggered by cell 2, i.e. the UE shall have deleted the measurement measurement configured through the MEASUREMENT CONTROL message, and instead apply the measurement configured in SIB12: a MEASUREMENT REPORT message with measurement identity 10 shall be received while no such message with measurement identity 11 shall be sent by the UE.

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to move it to CELL_FACH once again. The UE shalll move to that state and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS. SS transmits MEASUREMENT CONTROL message on the downlink DCCH, to configure intra-frequency measurements with validity CELL_DCH. SS waits, and verifies that no MEASUREMENT REPORT messages are detected on the uplink DCCH.

~~SS sends RADIO BEARER RECONFIGURATION message and configures dedicated physical channels. The UE shall return to CELL_DCH state, transmit a RADIO BEARER RECONFIGURATION COMPLETE message. The UE shall also send a MEASUREMENT REPORT message to the SS triggered by cell 2.~~

~~SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to move it to CELL_FACH. The UE shall move to that state and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS. SS shall wait and check that no MEASUREMENT REPORT messages are detected on the uplink DCCH.~~

~~SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH. The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS. Shortly after, a MEASUREMENT REPORT message shall be received that has been triggered by cell 2, i.e the UE shall have retrieved the measurement configured through the MEASUREMENT CONTROL message of a step before, instead of the ones that are broadcast in SIB12.~~

~~Following the reception of the MEASUREMENT REPORT message, SS commands the UE using MEASUREMENT CONTROL message to release measurement control information stored in "measurement identity" = 12. Thereafter, SS verifies that no MEASUREMENT REPORT messages are detected on the uplink DCCH. After this requirement is satisfied, SS sends MEASUREMENT CONTROL on the downlink DCCH once more. This message is identical to the one sent in a step before. A MEASUREMENT REPORT message shall be received from the UE triggered by cell 2.~~

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	System Information Block type 11 and 12	UE is initially in PS-DCCH+DTCH_FACH (state 6-11) in cell 1. System Information Block type 11 and 12 messages are changed with respect to the default contents according to the descriptions in "Specific Message Contents". Measurement identity 10 is included for event 1g and cell2.
2		←	SYSTEM INFORMATION CHANGE INDICATION	
3		←	RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
4		→	RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
5		→	MEASUREMENT REPORT	Reports cell 2's PCCPCH RSCP measurement value. Event 1g for cell 2 is triggered.
6		←	MEASUREMENT CONTROL	Cell 3 is added to the list of monitored set of the UE. Measurement identity 11 is included for event 1g and cell3.
7		→	MEASUREMENT REPORT	Cell 3 shall trigger the event 1g configured in the measurement identity 11.
8	Void			
9		←	System Information Block type 11 and 12	System Simulator reconfigures the downlink transmission power settings for cells according to Table 8.4.1.7A-1
10		←	PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
11		→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
12				SS waits and checks that no MEASUREMENT REPORT messages are sent by UE.
13		←	RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
14		→	RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state
15		→	MEASUREMENT REPORT	UE shall report cell 2's PCCPCH RSCP measurement value
16		←	PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels
17		→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state
18		←	MEASUREMENT CONTROL	SS instructs the UE to setup intra-frequency measurement and reporting for cell 2. Measurement validity" IE is set to CELL_DCH state.
19				SS waits and verifies that no MEASUREMENT REPORT messages are sent by UE.
20		←	RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.

Step	Direction		Message	Comment
	UE	SS		
21	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall return to CELL_DCH state.
22	→		MEASUREMENT REPORT	UE reports cell 2's measured results for PCCPCH RSCP.
23	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels
24	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state
25				SS waits and check that no MEASUREMENT REPORT messages are sent by the UE.
26	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels
27	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state
28	→		MEASUREMENT REPORT	UE shall have retrieved and resumed the measurement set up through the MEASUREMENT CONTROL of step 18.
29	←		MEASUREMENT CONTROL	Terminate all the intra-frequency measurement and reporting activitiest related to "measurement identity" = 12.
30				SS waits and verifies that UE stop transmitting MEASUREMENT REPORT messages.
31	←		MEASUREMENT CONTROL	This message is the same as in step 18
32	→		MEASUREMENT REPORT	UE shall transmit a MEASUREMENT REPORT message triggered by cell 2.

Specific Message Content

Master Information Block (Step 1)

Information Element	Value/Remarks
MIB Value Tag	3

System Information Block type 11 for cell 1 (Step 1)

Information Element	Value/remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
Intra frequency cell id	1
- Cell info	
Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity for RACH reporting	Not present
Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present
Inter-frequency measurement system information	Not present
Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not Present

System Information Block type 12 for cell 1 (Step 1)

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
Use of HCS	Not used
- Intra-frequency measurement system information	
Intra frequency measurement identity	10
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	2
Cell info	
- Cell individual offset	Not present
Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
Primary CCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
Cell selection and Re-selection info	Not Present
Cells for measurement	Not Present
- Intra-frequency measurement quantity	
Filter Coefficient	Not present
- CHOICE mode	TDD
- Measurement quantity list	
Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantityfor RACH reporting	Not present
Maximum number of reported cells on RACH	No report
- Reporting information for state CELL_DCH	
Intra frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
CHOICE mode	TDD
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	TDD
- Proposed TGSN Reporting required	FALSE
PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
Reporting quantities for detected cells	Not present
CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
Intra frequency event identity	1g
- Reporting range	Not present
- CHOICE Mode	TDD
Primary CCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
W	Not present
Hysteresis	0 dB
- Time to trigger	0
Amount of reporting	Not Present
- Reporting Interval	Not Present
- Reporting cell status	
CHOICE reported cells	Report cells within monitored set cells on used frequency
Maximum number of reported cells	1
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
Traffic volume measurement system information	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 2)

Information Element	Value/Remarks
BCCH modification info - MIB Value Tag - BCCH modification time	 3 Not Present

RADIO BEARER RECONFIGURATION (Step 3, Step 13, Step 20, Step 26)

Use the same message type found in TS34.108, with condition set to A4.

MEASUREMENT REPORT (Steps 5 and 22)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
Intra frequency measurement results	
- Cell measured results	
Cell Identity	Check to see if this IE is absent
Cell synchronisation information	Check to see if this IE is absent
- Primary CCPCH Info	Check to see if it's the same for cell 2
PCCPCH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
CHOICE event result	Check to see if it's set to 'Intra frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1g'
Cell measurement event results	
- Cell parameters Id	Check to see if it's the same for cell 2

MEASUREMENT CONTROL (Step 6)

Information Element	Value/remark
Measurement Identity	11
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
CHOICE mode	TDD
Primary CCPCH Info	Set to same as used for cell 3
- Cells selection and Re-selection info	Not Present
Cells for measurement	
- Intra-frequency cell id	3
- Intra-frequency measurement quantity	
Filter Coefficient	0
- CHOICE mode	TDD
Measurement quantity list	
Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
Cell identity reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
Cell synchronisation information reporting indicator	FALSE
Cell identity reporting indicator	TRUE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
Reporting cell status	Not present
- Measurement validity	Not present
CHOICE report criteria	Intra-frequency measurement criteria
Parameters required for each event	
- Intra-frequency event identity	1g
Reporting Range	Not Present
- Cells forbidden to affect Reporting range	Not Present
- CHOICE Mode	TDD
Primary CCPCH Info	Set to the same for cell 3
- W	Not Present
Hysteresis	0 dB
Time to Trigger	0
- Amount of reporting	Not Present
Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	1

MEASUREMENT REPORT (Step 7)

Information Element	Value/remark
Measurement identity	Check to see if set to 11
Measured Results	
CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
	Check to see if this IE is absent
- Cell synchronisation information	
Primary CCPCH Info	Check to see if it's the same for cell 3
- Proposed TGSN Reporting required	Check to see if this IE is present
PCCPCH RSCP reporting indicator	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if it's set to 'Intra-frequency measurement event results'
Event Results	
CHOICE event result	Check to see if this IE is set to '1g'
- Intra-frequency event identity	
Cell measurement event results	Check to see if it's the same for cell 3

System Information Block type 11 for cell 1 (Step 9)

Information Element	Value/remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
Use of HCS	Not used
Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
Intra-frequency cell id	1
- Cell info	
Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1.4 of TS34.108
- Cell Selection and Re-selection info	Not present
Cells for measurement	Not present
- Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
Reporting information for state CELL_DCH	Not present
Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
Traffic volume measurement system information	Not Present

System Information Block type 12 for cell 1 (Step 9)

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
Use of HCS	Not used
- Intra-frequency measurement system information	
Intra-frequency measurement identity	10
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	2
Cell info	
- Cell individual offset	Not present
Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
Primary CCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
Cell selection and Re-selection info	Not Present
Cells for measurement	Not Present
- Intra-frequency measurement quantity	
Filter Coefficient	Not present
- CHOICE mode	TDD
- Measurement quantity list	
Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
Maximum number of reported cells on RACH	No report
- Reporting information for state CELL_DCH	
Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
CHOICE mode	TDD
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	TDD
- Proposed TGSN Reporting required	FALSE
PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
Reporting quantities for detected cells	Not present
CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
Intra-frequency event identity	1g
- Reporting range	Not present
- Cells forbidden to affect reporting	Not present
CHOICE Mode	TDD
- Primary CCPCH Info	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1.4 of TS 34.108
W	Not present
- Hysteresis	0 dB
Time to trigger	0
- Amount of reporting	Not Present
- Reporting Interval	Not Present
Reporting cell status	
- CHOICE reported cells	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	1
- Inter-frequency measurement system information	Not Present
Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

~~PHYSICAL CHANNEL RECONFIGURATION (Steps 10, 16, 23)~~

~~Use the same message sub-type found in TS 34.108, which is entitled "Packet to CELL_FACH from CELL_DCH in PS".~~

MEASUREMENT CONTROL (Steps 18 and 31)

Information Element	Value/remark
Measurement Identity	12
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra- frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	TDD
- Primary CCPCH Info	Set to same as used for cell 2
- Cell selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- CHOICE mode	TDD
- Measurement quantity list	
- Measurement quantity	PCCPCH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- Proposed TGSN Reporting required	FALSE
- PCCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	
- UE state	CELL_DCH
- CHOICE report criteria	Intra-frequency measurement criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Reporting Range	Not Present
- Cells forbidden to affect Reporting range	Not Present
- Primary CCPCH Info	Set to the same for cell 2
- W	Not Present
- Hysteresis	0 dB
- Time to Trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	1

MEASUREMENT REPORT (Steps 22, 28 and 32)

Information Element	Value/remark
Measurement identity	Check to see if set to 12
Measured Results	
CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
Intra-frequency measurement results	
- Cell measured results	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	
- Primary CCPCH Info	Check to see if it's the same for cell 2
Proposed TGSN Reporting required	Check to see if this IE is absent
- PCCPCH RSCP reporting indicator	Check to see if this IE is present
Pathloss	Check to see if this IE is absent
Measured Results on RACH	
Additional measured results	Check to see if it's set to 'Intra-frequency measurement event results'
Event Results	
CHOICE event result	Check to see if this IE is set to '1g'
Intra-frequency event identity	
- Cell measurement event results	
Cell parameters Id	Check to see if it's the same for cell 2

MEASUREMENT CONTROL (Step 29)

Information Element	Value/remark
Measurement Identity	12
Measurement Command	Release
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE Measurement type	Not Present
DPCH compressed mode status info	Not Present

8.4.1.7A.5 Test Requirement

After step 4 the UE shall report cell 2's PCCPCH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 6 the UE shall transmit MEASUREMENT REPORT contain measured results of cell 3's PCCPCH RSCP value for measurement identity 11.

After step 11 the UE shall not transmit MEASUREMENT REPORT messages, which pertain to intra-frequency type measurement reporting.

After steps14, the UE shall transmit MEASUREMENT REPORT messages, containing measured results of cell 2's PCCPCH RSCP value.

After step 18, no MEASUREMENT REPORT messages shall be detectable by the SS on the uplink DCCH.

After step 21, the UE shall transmit a MEASUREMENT REPORT message to the SS as specified in the MEASUREMENT CONTROL message received in step 18.

After step 24 no MEASUREMENT REPORT messages shall be detectable by the SS on the uplink DCCH.

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After step 27, the UE shall transmit a MEASUREMENT REPORT message to the SS as specified in the MEASUREMENT CONTROL message received in step 18.

3GPP TSG-T WG1 Meeting #25
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CHANGE REQUEST

⌘ **34.123-1** **CR** **965** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5; Modification of low priority test case 8.2.4.24 to increase test coverage
Source:	⌘	Ericsson
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The current test cases do not cover more than one signalled gain factor in the TFCS. Currently, all gain factors are computed except for the last one, which is signalled. There is a possibility to use more than one signalled gain factor and it should be tested.
Summary of change:	⌘	The low priority test case 8.2.4.24 ìTransport channel reconfiguration from CELL_DCH to CELL_DCH: Success with uplink transmission rate modificationî is modified. The TRANSPORT CHANNEL RECONFIGURATION message is modified to include an UL DCH TFCS include more than one signalled gain factor.
Consequences if not approved:	⌘	No test coverage on more than one signalled gain factor.

Clauses affected:	⌘	8.2.4.24

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Affects R99, Rel-4 and Rel-5 UEs.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.4.24 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Success with uplink transmission rate modification

8.2.4.24.1 Definition

8.2.4.24.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message:

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS25.214;

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS25.331 subclause 8.6.3.3.

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if the IE "Downlink information for each radio link" is absent, not change its current DL Physical channel configuration.

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.

8.2.4.24.3 Test purpose

To confirm that the UE transmits TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC after reconfigure its available uplink TFC according to a TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.24.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state of cell 1. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to modify the transmission rate. This message includes a new uplink transport channel information in order to restricts available uplink TFC within assigned uplink TFCS. The UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC after reconfiguring its transport channel parameters. Next the SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE which includes a new uplink transport channel information in order to reconfigure uplink TFCS. The UE transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC after reconfiguring its transport channel parameters according to the TRANSPORT CHANNEL RECONFIGURATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state of cell 1.
2	←		TRANSPORT CHANNEL RECONFIGURATION	This message includes the IE"TFC subset" and don't include UL/DL physical channel information.
3	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
4	←		TRANSPORT CHANNEL RECONFIGURATION	
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 2)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	
- CHOICE mode	FDD
- TFC subset	
- CHOICE Subset representation	Allowed transport format combination list
- Allowed transport format combination	Indicate TFCs which are a part of the TFCS defined in this message to restrict uplink allowed TFC subset.
- UL DCH TFCS	Same contents as a RADIO BEARER SETUP message used in initial procedure.
CHOICE channel requirement	Not present
Downlink information per radio link list	Not present

TRANSPORT CHANNEL RECONFIGURATION (Step 4)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	
- CHOICE mode	FDD
- TFC subset	
- UL DCH TFCS	~~Reference to TS34.108 clause 6.10 Parameter Set~~ ~~Set different parameter which is included in a RADIO BEARER SETUP message used in initial procedure.~~
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfiguration	
- CHOICE CTFC Size	Number of bits used must be enough to cover all combinations of CTFC from TS34.108 clause 6.10.2.4 Parameter Set.
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4 Parameter Set
- CTFC	Reference to TS34.108 clause 6.10.2.4 Parameter Set as defined in the RADIO BEARER SETUP message with highest rate CTFC removed.
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factors except for the TFC for 64 kbps and the last TFC which are set to Signalled Gain Factors
- Gain factor βc	11 (TFC for 64 kbps) 9 (last TFC, i.e. highest rate) (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Gain factor βd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Reference TFC ID	0 (64 kbps and below) 1 (higher than 64 kbps)
- CHOICE mode	FDD
- Power offset P p-m	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	Same contents as a RADIO BEARER SETUP message used in initial procedure
- CHOICE mode	FDD
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set Set different parameter which is included in a RADIO BEARER SETUP message used in initial procedure.
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set Set different parameter which is included in a RADIO BEARER SETUP message used in initial procedure.
- Number of FBI bit	Not Present
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set Set different parameter which is included in a RADIO BEARER SETUP message used in initial procedure.
Downlink information per radio link list	Not present

8.2.4.24.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 4 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

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CHANGE REQUEST

⌘ **34.123-1** **CR** **966** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5; New Rel-5 Measurement Test Case
Source:	⌘	Ericsson
Work item code:	⌘	TEI-5
Date:	⌘	22/10/2004
Category:	⌘	**B**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	In Rel-5, the UE behaviour when event 1D was slightly modified (CR2041 to TS 25.331). After receiving the MEASUREMENT CONTROL message configuring event 1D, the UE immediately sends a MEASUREMENT REPORT indicating the best cell. This is not covered by the existing test cases. In Rel-5, there is a possibility to use the IE ìDelta CPICH RSCPî to report a CPICH RSCP with an expanded value range in Cell Measured Results (CR 1795 to TS 25.331). This is not covered by the existing test cases.
Summary of change:	⌘	A new test case is added: 8.4.1.X Measurement Control and Report: Intra-frequency measurement for event 1D and DeltaRSCP reporting In this test case, the modified event 1D and RSCP reporting for Rel-5 is tested.
Consequences if not approved:	⌘	The enhanced meaurement reporting features introduced in Rel-5 remain untested.

Clauses affected:	⌘	8.4.1.X (new)

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Affects Rel-5.

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8.4.1.X Measurement Control and Report: Intra-frequency measurement for event 1D and DeltaRSCP reporting

8.4.1.X.1 Definition

8.4.1.X.2 Conformance requirement

>>CPICH RSCP	OP		Integer(0..91)	According to CPICH_RSCP in [19] and [20]. Thirty-six spare values are needed.	
>>Delta$_{CPICH\ RSCP}$	CV-*RSCP*		Integer(-5..-1)	If present, the actual value of CPICH RSCP = CPICH RSCP+ Delta$_{CPICH\ RSCP}$	REL-5

Condition	**Explanation**
RSCP	This IE is mandatory if CPICH RSCP is present and if the value of the CPICH RSCP is below 0. It is not needed otherwise.

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When an intra-frequency measurement configuring event 1d is set up, the UE shall:

1> create a variable TRIGGERED_1D_EVENT related to that measurement, which shall initially contain the best cell in the active set when the measurement is initiated;

1> delete this variable when the measurement is released.

1> As soon as the best cell in the active set has been evaluated by the UE (and stored in the TRIGGERED_1D_EVENT variable) and provided that there is more than one cell in the active set, trigger an immediate measurement report with IEs set as below:

2> set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH stored in the TRIGGERED_1D_EVENT variable;

2> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2

When event 1D is configured in the UE, the UE shall:

1> if IE "useCIO" is present and its value is TRUE, take into account the Cell Individual Offset for evaluation of the Equation 1 and 2, otherwise do not take it into account.

1> if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST_CELL_1D_EVENT, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for a primary CPICH that is not stored in "Best cell" in variable BEST_CELL_1D_EVENT:

NOTE: If the equations are simultaneously fulfilled for more than one primary CPICH, the UE should report only one event 1D, triggered by the best primary CPICH.

2> if all required reporting quantities are available for that cell, and if the equations have been fulfilled for a time period indicated by "Time to trigger" and if IE "Triggering condition 2" is absent or if it is present and that primary CPICH is part of cells allowed to trigger the event according to "Triggering condition 2":

3> set "best cell" in the variable BEST_CELL_1D_EVENT to that primary CPICH that triggered the event;

3> send a measurement report with IEs set as below:

4> set in "intra-frequency measurement event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH that triggered the report.

4> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2.

Reference

3GPP TS 25.331 clauses 10.3.7.3, 14.2.1.4

8.4.1.X.3 Test Purpose

1. To confirm that the UE responds as soon as possible with a MEASUREMENT REPORT indicating best cell, after receiving a MEASUREMENT CONTROL message indicating the 1d event.

2. To confirm that the UE includes the IE ì Delta CPICH RSCPî in the MEASUREMENT REPORT message when needed.

8.4.1.X.4 Method of test

FFS

8.4.1.X.5 Test Requirement

FFS

3GPP TSG-T1 Meeting #25
Malta, 1st-5th November 2004

Tdoc ⌘T1-041592

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 967 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to package 2 approved RAB test case 14.2.29
Source:	⌘	Racal Instruments Wireless Solutions, an Aeroflex Company
Work item code:	⌘	TEI
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘ There is an editorial error in the section ìTest requirementsî at step 15: the UE transmitted transport format is not in accordance with the method of test.

As per clause 14.2.29.3, uplink TFS are defined as:

TF1 (1x336).

TF2 (2x336)

TF3 (3x336)

TF4 (4x336)

Summary of change: ⌘ In clause 14.2.29.4 replace:

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (4x336) or RB5/TF1 (1x336).
- for sub-test 4: RB5/TF4 (8x336) or RB5/TF1 (1x336).
- for sub-test 5: RB5/TF3 (4x336) or RB5/TF1 (1x336).

By

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).

		- for sub-test 3: RB5/TF3 (3x336) or RB5/TF1 (1x336). - for sub-test 4: RB5/TF4 (4x336) or RB5/TF1 (1x336). - for sub-test 5: RB5/TF3 (3x336) or RB5/TF1 (1x336).
Consequences if not approved:	⌘	Test prose would be incorrect.

Clauses affected:	⌘	14.2.29.4			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	This CR does not affect the TTCN implementation.			

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of Modification>

14.2.29 Interactive or background / UL:64 DL:144 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.29.1 Conformance requirement

See 14.2.4.1.

14.2.29.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.29.

14.2.29.3 Method of test

Uplink TFS:

	TFI	RB5 (64 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Downlink TFS:

	TFI	RB5 (144 kbps)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	9x336	N/A

Downlink TFCS:

TFCI	(RB5, DCCH)
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF2, TF0)
DL_TFC3	(TF3, TF0)
DL_TFC4	(TF4, TF0)
DL_TFC5	(TF5, TF0)
DL_TFC6	(TF0, TF1)
DL_TFC7	(TF1, TF1)
DL_TFC8	(TF2, TF1)
DL_TFC9	(TF3, TF1)
DL_TFC10	(TF4, TF1)
DL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC3	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2872

NOTE 1: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size paramater has been set to achieve verification of all test data sent by SS in downlink, i.e. UL RLC SDU size is set to nearest multiple of the payload size of the UL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit) which is equal or bigger than the test data size.

See 14.1.1 for test procedure.

14.2.29.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: RB5/TF1 (1x336).
- for sub-test 2: RB5/TF2 (2x336) or RB5/TF1 (1x336).
- for sub-test 3: RB5/TF3 (~~4x336~~3x336) or RB5/TF1 (1x336).
- for sub-test 4: RB5/TF4 (~~8x336~~4x336) or RB5/TF1 (1x336).
- for sub-test 5: RB5/TF3 (~~4x336~~3x336) or RB5/TF1 (1x336).

3. At step 15 the UE shall return
   - for sub-test 1, 2, 4 and 5: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.
   - for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the test data sent by the SS in downlink.

<End of Modification>

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Malta, 1st ñ 5th November 2004

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Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to MAC-hs test cases
Source:	⌘	Ericsson
Work item code:	⌘	HSDPA
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	1. Not clear from title of test case 7.1.5.2 that it is a MAC-hs test case 2. Incorrect sub-clause numbers in MAC-hs test case 7.1.5.5.
Summary of change:	⌘	1. Update of title of 7.1.5.2 (to clarify that it is a MAC-hs test case) 2. Sub-clause numbers corrected for sub-clauses in test case 7.1.5.5
Consequences if not approved:	⌘	Incorrect sub-clause numbering remains

Clauses affected:	⌘	7.1.5.2 and 7.1.5.5

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
	X		Test specifications	34.123-2 (T1-041595)
		X	O&M Specifications	

Other comments: ⌘

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<Start of first modified section>

7.1.5.2 MAC-hs pPriority queue handling

<End of modified section>

<Start of next modified section>

7.1.5.5 MAC-hs reset

7.1.5.5~~3~~.1 Definition and applicability

All UEs which support HS-PDSCH.

7.1.5.5~~3~~.2 Conformance requirement

If a reset of the MAC-hs entity is requested by upper layers, the UE shall:

- flush soft buffer for all configured HARQ processes;
- stop all active re-ordering release timer (T1) and set all timer T1 to their initial value;
- start TSN with value 0 for the next transmission on every configured HARQ process;
- initialise the variables RcvWindow_UpperEdge and next_expected_TSN to their initial values;
- disassemble all MAC-hs PDUs in the re-ordering buffer and deliver all MAC-d PDUs to the MAC-d entity;
- flush the re-ordering buffer.

and then:

- indicate to all AM RLC entities mapped on HS-DSCH to generate a status report.

[...]

Reference(s)

TS 25.321 clause 11.6.2.5

7.1.5.5~~3~~.3 Test purpose

1. To confirm that the UE flushes the reordering buffer and delivers all MAC-d PDUs in the buffer to higher layers upon reset.

2. To confirm that the UE initializes the TSN and next_expected_TSN to their initial values.

3. To confirm that the UE sends an RLC status report after the reset.

7.1.5.5~~3~~.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

The SS follows the procedure in TS 34.108 7.4.2.6 (Mobile Terminated) so that the UE shall be in state BGP 6-17 (PS-DCCH + DTCH HS-DSCH). The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	32
MAC-hs reordering timer T1	400 ms

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 39 octets.

Test procedure

In this test procedure each MAC-hs PDU contains one RLC PDU carrying one SDU of size 39 octets and one length indicator indicating the end of the SDU.

a) The SS transmits a MAC-hs PDU with Transmission Sequence Number (TSN) = 0 containing an RLC PDU with SN=0

b) The SS checks that the RLC PDU with SN=0 is looped back

b) The SS transmits 2 MAC-hs PDUs with TSN = 2,3 containing the RLC PDUs with SN=1,2

c) The SS initiates a MAC-hs reset by transmitting a PHYSICAL CHANNEL RECONFIGURATION message

d) The SS checks that the RLC PDUs with SN=1,2 are looped back

e) The SS checks that an RLC status report is transmitted by the UE

d) The SS transmits a MAC-hs PDU with TSN = 0 containing an RLC PDU with SN=3

e) The SS checks that the RLC PDU with SN=3 is looped back

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1		←	MAC-hs PDU with TSN = 0, containing RLC PDU with SN = 0	
2	→		RLC PDU with SN 0	
3		←	MAC-hs PDU with TSN = 2, containing RLC PDU with SN = 1	
4		←	MAC-hs PDU with TSN = 3, containing RLC PDU with SN = 2	
5		←	SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to trigger a MAC-hs reset	Note: Time Ta
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	→		RLC PDUs with SN 1,2	The RLC PDUs are delivered directly after the MAC-hs reset i.e. before T1 expires. Note: time Tb
8	→		RLC status report	
9		←	MAC-hs PDU with TSN = 0, containing RLC PDU with SN = 3	
10	→		RLC PDUs with SN 3	
NOTE : Steps 6-8 may occur in different order.				

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 5)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
Downlink information common for all radio links - MAC-hs reset indicator	TRUE

7.1.5.5~~1~~.5 Test requirements

1. After step 1, the RLC PDU with SN = 0 shall be looped back

2. After step 5, the RLC PDUs with SN = 1,2 shall be looped back
3. The time Tb-Ta shall be less than T1/2
3. After step 5 an RLC status report shall be received
4. After step 5, the RLC PDU with SN=3 shall be looped back

<End of modified section>

3GPP TSG-T1 Meeting #25
Malta, 1st-5th November 2004

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CHANGE REQUEST

⌘ **34.123-1** **CR** 969 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

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Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to package 1 MAC approved test case 7.1.1.2
Source:	⌘	Racal Instruments Wireless Solutions, an Aeroflex Company
Work item code:	⌘	TEI
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

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R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In the test requirement (clause 7.1.1.2.5), it is specified in step a) that the TCTF field shall have the value ë00íB. But, According to 25.321 table 9.2.1.4, TCTF is set to ë01íB for DCCH or DTCH mapped to RACH.
Summary of change:	⌘	In the test requirement step a), the TCTF field value shall be replaced to ë01íB
Consequences if not approved:	⌘	Test case would be incorrect.

Clauses affected:	⌘	7.1.1.2.5

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	This CR does not affect the TTCN implementation.

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<Start of Modification>

7.1.1.2 DTCH or DCCH mapped to RACH/FACH / Invalid TCTF

7.1.1.2.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the RACH/FACH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.2.2 Conformance requirement

DTCH or DCCH mapped to RACH/FACH:

TCTF field, C/T field, UE-Id type field and UE-Id are included in the MAC header.

The following fields are defined for the MAC header:

- Target Channel Type Field
  Ö

Coding of the Target Channel Type Field on FACH for FDD

TCTF	Designation
00	BCCH
01000000	CCCH
01000001-01111111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
10000000	CTCH
10000001-10111111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
11	DCCH or DTCH over FACH

Coding of the Target Channel Type Field on FACH for TDD

TCTF	Designation
000	BCCH
001	CCCH
010	CTCH
01100	DCCH or DTCH over FACH
01101-01111	Reserved (PDUs with this coding will be discarded by this version of the protocol)
100	SHCCH
101-111	Reserved (PDUs with this coding will be discarded by this version of the protocol)

Reference(s)

TS 25.321 clauses 9.2.1 and 9.2.1.1 c).

7.1.1.2.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in the TCTF field.

2. To verify that the TCTF field, C/T field, UE-Id type and UE-Id field are correctly applied when a DTCH or DCCH is mapped to the RACH/FACH.

7.1.1.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off.

The SCCPCH is configured as specified in TS 34.108 clause 6.10.2.4.3.3(FDD) and 6.11.5.4.4.3(1.28Mcps TDD) (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH) with the following exceptions for the FACH:

FDD:

Higher layer	RAB/signalling RB		RB#3 (SRB#3)
	User of Radio Bearer		Test
RLC	Logical channel type		DCCH
	RLC mode		TM
	Payload sizes, bit		168
	Max data rate, bps		33600 (alt. 50400)
	RLC header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		168
	TFS	TF0, bits	0 x 168
		TF1, bits	1 x 168
		TF2, bits	2 x 168
		TF3, bits	N/A (alt. 3 x 168)
	TTI, ms		10
	Coding type		CC Ω
	CRC, bit		16
	Max number of bits/TTI before rate matching		752 (alt. 1136)
	RM attribute		200-240
NOTE:	The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.		

TDD:

Higher layer	RAB/signalling RB	RB#3 (SRB#3)
	User of Radio Bearer	Test
RLC	Logical channel type	DCCH
	RLC mode	TM
	Payload sizes, bit	171
	Max data rate, bps	33600 (alt. 50400)

	RLC header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		FACH
	TB sizes, bit		171
	TFS	TF0, bits	0 x 171
		TF1, bits	1 x 171
		TF2, bits	2 x 171
		TF3, bits	3 x 171
		TF4, bits	4x 171
		TF5, bits	N/A (alt. 5x 171)
		TF6, bits	N/A (alt. 6 x 171)
	TTI, ms		20
	Coding type		CC 1/2
	CRC, bit		16
	Max number of bits/TTI before rate matching		1528 (alt. 2292)
	RM attribute		200-240
NOTE:	The SS MAC layer must be configured not to add a MAC header so that the header can be added by the test case in order to create the necessary invalid values.		

and using the configuration in TS 34.108 clause 6.10.2.4.3.3 (FDD), 6.11.5.4.4.3(1.28Mcps TDD) for the PCH.

The TFCS should be configured as specified in clause 6.10.2.4.3.3.1.4 (FDD), 6.11.5.4.4.3.1.4(1.28Mcps TDD).

User Equipment:

The UE shall operate under normal test conditions, Ciphering Off.

The Test-USIM shall be inserted.

The SS starts broadcasting the System Information as specified in TS 34.108 clause 6.1, using the configuration for the PRACH and SCCPCH (signalled in SYSTEM INFORMATION 5) as follows:

1. The SCCPCH is configured as specified in TS 34.108 clause 6.10.2.4.3.3 (FDD), 6.11.5.4.4.3(1.28Mcps TDD) (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH).

2. The PRACH is configured as specified in TS 34.108 clause 6.10.2.4.4.1 (FDD), 6.11.5.4.5.2(1.28Mcps TDD).

The SS follows the procedure in TS 34.108 clause 7.4.2.1 (Mobile Terminated) so that the UE shall be in state BGP 6-2 (CS-CELL_FACH_INITIAL) or 6-4 PS-CELL_FACH_INITIAL.

Test procedure

a) The SS receives the PAGING RESPONSE or SERVICE REQUEST (depending on domain) message from the UE and checks the TCTF field.

b) The SS transmits MAC PDUs containing RLC AM PDUs containing a DIRECT TRANSFER message containing an AUTHENTICATION REQUEST message.

1. Dummy octet string for NAS Message, of size sufficient enough to fit in one RLC PDU of 144 bits, including the correct RLC AM header.

2. The IE CN Domain Identity is Set to PS Domain (if UE initial state is 6-2) or CS Domain (if UE initial state is 6-4) (no signalling connection for this domain exists).

3. The polling bit in RLC header is set for transmission of RLC STATUS PDU.

The MAC header shall be set as follows:

Field	Value
TCTF	01000001'B(FDD), 101(TDD)
UE ID Type	C-RNTI
UE ID	As set in RRC CONNECTION SETUP message.
C/T	Logical Channel ID for SRB #3 (AM-DCCH NAS High Priority)

Where a TCTF size of 8-bits is used, 6-bits from the RLC payload shall be discarded.

c) The SS checks that UE shall neither transmit RRC Status message on SRB2 nor RLC Status PDU on SRB3.

d) The SS again transmits MAC PDUs as in b) above, but this time uses the correct TCTF of 11'B for FDD, 01100íB for TDD. The sequence numbers in the RLC headers shall be identical with those sent in b).

e) SS Receives RLC Status PDU on SRB #3 acknowledging the receipt of the above RLC PDU.

f) The SS receives a RRC STATUS message on the uplink DCCH using AM RLC on SRB # 2.

g) The SS repeats steps b), c), d) e) and f), with the TCTF field set as follows in step b):

FDD:

Iteration	TCTF Value
2	01111111'B
3	10000000'B
4	10000001'B
5	10111111'B

TDD:

Iteration	TCTF Value
2	110'B
3	010'B
4	01111'B
5	01101'B

Expected sequence

FDD:

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE/SERVICE REQUEST	Check TCTF
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect TCTF = 01000001'B, 01111111'B, 10000000'B, 10000001'B, or 10111111'B
2a			wait for T = 10 s	SS checks that UE shall neither transmit RRC-Status message on SRB 2 nor RLC Status PDU on SRB 3 See note 1 below
3	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct TCTF = 11'B
4	→		RLC-STATUS-PDU	ACK PDUs with SN = x and TCTF Field is recognised as correct for the DCCH. See note 2 below
5	→		RRC Status message	
NOTE 1: UE will Transmit Signalling Connection Release Indication on expiry of MM Timer T3240 or GMM Timer T3317. NOTE 2: RRC Status message may be received before RLC Status PDU.				

TDD:

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE	Check TCTF
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect TCTF = 101'B, 110'B, 010'B, 01111íB, or 01101íB
2	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect TCTF = 010101'B, 110'B, 010'B, 01111íB, or 01101íB
2a			wait for T = 10 s	SS checks that UE shall neither transmit RRC-Status message on SRB 2 nor RLC Status PDU on SRB 3 See note 1 below
3	←		MAC PDU(TCTF, UE-ID, C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct TCTF = 01100'B
4	→		RLC-STATUS-PDU	ACK PDUs with SN = x and TCTF Field is recognised as correct for the DCCH. See note 2 below
5	→		RRC Status message	
NOTE 1: UE will Transmit Signalling Connection Release Indication on expiry of MM Timer T3240 or GMM Timer T3317. NOTE 2: RRC Status message may be received before RLC Status PDU.				

Steps 2 ñ 5 of above expected sequence are repeated for iterations 2 to 5. Note: For iteration k the SN in steps 2 and 4 starts with x + (k ñ1).

Specific Message Contents

None

7.1.1.2.5 Test Requirement

In step a) the TCTF field should have the value ë0~~0~~1'B. Note that this may be implied from receipt of the PAGING RESPONSE/SERVICE REQUEST message correctly by the SS test script.

During the test the SS shall request an RLC status report with every transmitted PDU by setting of the Polling Bit. The UE shall not send any STATUS PDUs indicating missing PDUs.

At the end of each iteration (steps 4 and 5 of expected sequence) the SS shall receive an RRC Status message on SRB # 2, and RLC Status PDU on SRB # 3 with TCTF field set to value '01' B for FDD, '0100' B for TDD.

<End of Modification>

3GPP TSG-T1 Meeting #25
Malta, 1st-5th November 2004

Tdoc ⌘T1-041597

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 970 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to package 2 RRC approved test case 8.3.1.22
Source:	⌘	Racal Instruments Wireless Solutions, an Aeroflex Company
Work item code:	⌘	TEI
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	According to 24.008 clause 4.1.1.1.1, the GMM message ROUTING AREA UPDATE ACCEPT message shall be integrity protected. As a result the security procedure shall be executed before sending the PDU ROUTING AREA UPDATE in step 15.
Summary of change:	⌘	The SECURITY MODE COMMAND and SECURITY MODE COMPLETE messages shall be added in steps 14a and 14b.
Consequences if not approved:	⌘	Test prose would be incorrect.

Clauses affected:	⌘	8.3.1.22.4

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	This CR does not affect the TTCN implementation.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of Modification>

8.3.1.22 Cell update: Restricted cell reselection to a cell belonging to forbidden LA list (Cell_FACH)

8.3.1.22.1 Definition

8.3.1.22.2 Conformance requirement

1. -Cell reselection:

   - if none of the criteria for performing cell update with the causes specified above in the current clause is met; and

   - if the UE is in CELL_FACH or CELL_PCH state; and

   - if the UE performs cell re-selection or the variable C_RNTI is empty:

     - perform cell update using the cause "cell reselection".

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   - The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.

   - The cell is not barred.

   - The cell is not part of the list of "forbidden LAs for roaming"

   - The cell selection criteria are fulfilled.

3. The Mobile Equipment shall contain a list of "forbidden location areas for roaming", as well as a list of "forbidden location areas for regional provision of service". These lists shall be erased when the MS is switched off or when the SIM is removed, and periodically (with period in the range 12 to 24 hours). The location area identification received on the BCCH that triggered the location updating request shall be added to the suitable list whenever a location update reject message is received with the cause "Roaming not allowed in this location area" or with the cause "Location Area not allowed". The lists shall accommodate each 10 or more location area identifications. When the list is full and a new entry has to be inserted, the oldest entry shall be deleted.

Reference

3GPP TS 25.331 clause 8.3.1.2.

3GPP TS 25.304 clause 4.3.

3GPP TS 24.008 clause 4.4.1.

8.3.1.22.3 Test purpose

1. To confirm that the UE executes a cell update procedure after a successful reselection of another UTRA cell with a LA identity that is not part of the list of LAs stored in the UE as "forbidden location areas for roaming".

2. To confirm that if the UE get a release message and is moved to idle mode, performs a registration update where the LA list is updated and the UE again enters connected mode, that the UE refrains from selecting that same UTRA cell if that is part of the forbidden LA list.

NOTE: Test case in 8.3.1.1 is a test where the UE reselects to a cell with the same LA identity as the LA identity in the original cell.

NOTE: Test case in 8.1.3.2 is a test where normal RRC connection release on DCCH in CELL_FACH state is tested.

NOTE: Test case in 8.1.9 is a test where normal RRC connection request and location registration is tested.

8.3.1.22.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 is active, with the downlink transmission power shown in column marked "T0" in table 8.3.1.22, while cell 2 is inactive.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

UE: Shall have an empty list of LAs stored that are "forbidden location areas for roaming".

Related ICS/IXIT statements

Support of PS service
Yes/No

Test Procedure

Table 8.3.1.22

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
LA identity		LA-ID 1		LA-ID 2	
CPICH Ec (FDD)	dBm	-60	-66	Cell 2 is switched off	-60
P-CCPCH RSCP (TDD)	dBm	-62	-68	Cell 2 is switched off	-68

Table 8.3.1.22-1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1"is to be applied subsequently.

a) At T1, verify that the UE reselects to cell 2 and sends a cell update.

b) SS sends a RRC connection release message to the UE from cell2 on CCCH.

c) The UE performs a routing area update to cell 2 (RRC Conection request, setup, initial direct transfer, DL direct transfer (with LA forbidden for roaming), RRC connection release.)

d) The UE reselects cell 1 again although this is not the best cell.

e) The UE performs a routing area update to cell 1 (RRC Conection request, setup, initial direct transfer, DL direct transfer (without LA forbidden for roaming)).

f) Keep the UE in RRC Connected mode in CELL_FACH state.

g) Make sure the UE refrains from reselecting cell2 and sends a cell update (or any other message) in cell2.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		CELL UPDATE	At T1: Sent in Cell 2 The value "cell reselection" set in IE "Cell update cause".
2	←		RRC CONNECTION RELEASE	This message is sent on CCCH. The value "Normal event" is set in IE "Release cause"
3			Void	
4	→		RRC CONNECTION REQUEST	The value "Registration" is set in IE "Establishment cause"
5	←		RRC CONNECTION SETUP	Transits the UE to CELL_FACH state.
6	→		RRC CONNECTION SETUP COMPLETE	
7	→		INITIAL DIRECT TRANSFER	Includes GMM messageROUTING AREA UPDATE REQUEST.
8	←		DOWNLINK DIRECT TRANSFER	Includes GMM message ROUTING AREA UPDATE REJECT with reject cause ìNo Suitable Cells In Location Areaî
9	←		RRC CONNECTION RELEASE	This message is sent on DCCH. The value "Normal event" is set in IE "Release cause"
10	→		RRC CONNECTION RELEASE COMPLETE	
11	→		RRC CONNECTION REQUEST	Sent in Cell 1. The value "Registration" is set in IE "Establishment cause"
12	←		RRC CONNECTION SETUP	Transits the UE to CELL_FACH state.
13	→		RRC CONNECTION SETUP COMPLETE	
14	→		INITIAL DIRECT TRANSFER	Includes GMM messageROUTING AREA UPDATE REQUEST.
14a	←		SECURITY MODE COMMAND	
14b	→		SECURITY MODE COMPLETE	
15	←		DOWNLINK DIRECT TRANSFER	Includes GMM message ROUTING AREA UPDATE ACCEPT.

Specific Message Contents

CELL UPDATE (Step 1)

The same message found in TS34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI - SRNC Identity - S-RNTI Cell Update Cause	 Check to see if set to '0000 0000 0001' Check to see if set to '0000 0000 0000 0000 0001' Check to see if set to 'cell reselection'

RRC CONNECTION RELEASE (Step 2, 9)

Use the same message sub-type found in TS34.108 clause 9.

RRC CONNECTION RELEASE COMPLETE (Step 10)

Use the same message sub-type found in TS34.108 clause 9. Only the message type IE in this message will be checked.

RRC CONNECTION REQUEST (Step 4, 11)

Use the same message sub-type found in TS34.108 clause 9.

RRC CONNECTION SETUP (Step 5, 12)

Use the same message sub-type found in TS34.108 clause 9.

RRC CONNECTION SETUP COMPLETE (Step 6, 13)

Use the same message sub-type found in TS34.108 clause 9.

INITIAL DIRECT TRANSFER (Step 7, 14)

Use the same message sub-type found in TS34.108 clause 9.

DOWNLINK DIRECT TRANSFER (Step 8, 15)

Use the same message sub-type found in TS34.108 clause 9.

8.3.1.22.5 Test requirement

In step 1, the UE shall send a CELL UPDATE in Cell 2 at T1 and attempt registration update in Cell 2.

After step 2, the UE shall transmit RRC CONNECTION REQUEST message.

After step 5, the UE shall transmit RRC CONNECTION SETUP COMPLETE message, followed by an INITIAL DIRECT TRANSFER message

Since the registration update is rejected in Cell 2, UE shall transmit RRC CONNECTION RELEASE COMPLETE message after receiving RRC CONNECTION RELEASE message from SS. UE shall not send any more messages in Cell 2.

After step 9, the UE shall transmit RRC CONNECTION REQUEST message in cell 1.

After step 12, the UE shall transmit RRC CONNECTION SETUP COMPLETE message followed by INITIAL DIRECT TRANSFER message.

<End of Modification>

3GPP TSGñT1 Meeting #25
Malta, 1st ñ 5th Nov. 2004

Tdoc ⌘T1-041602

CR-Form-v7

CHANGE REQUEST

⌘ **TS34.123-1** **CR** 971 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Add sections for tests on Shared Channels
Source:	⌘	InterDigital Communications Corp.
Work item code:	⌘	TDD
Date:	⌘	18/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Add sections for tests on Shared Channels
Summary of change:	⌘	Add section 18.2.3 and 18.2.4
Consequences if not approved:	⌘	If changes are not approved, UE in TDD Shared Channels will not be tested.

Clauses affected:	⌘	18.2.3 and 18.2.4

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Affects Rel-4 and Rel-5 test cases.

How to create CRs using this form:
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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

18.2.3 ~~Void~~Combinations on PDSCH, SCCPCH, PUSCH and PRACH

18.2.3.1 Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.1 Interactive or background / UL: 64(payload 320) DL: 256 kbps (10 ms TTI) / PS RAB + UL: 3.4/16.8 DL: 3.4/33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.1.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.1.** for the **uplink payload of 320** bits and downlink **10 ms TTI case**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB**, 16.8 kbps **SHCCH and the 3.4 kbps DCCH.** The Interactive/Background PS RAB on the USCH has a **320 bit** Payload Size.
- The **RACH** channel can carry combinations of the **signalling Radio Bearer for 16.8 kbps CCCH, DCCH, and SHCCH** excluding or including an **Interactive/Background 12.8 kbps UL PS RAB.**

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 256 kbps PS RAB**, the 16 kbps SHCCH and the 3.4 kbps DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI.
- The **FACH** can carry combinations of the **signalling Radio Bearer for 33.6 kbps CCCH, DCCH, SCCH, BCCH** and *excluding or including* an **Interactive/Background 32 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.1.1.3 Method of test

The contents of the System Information Block type 5 are specified in clause 8.1.2.2 with the following modifications.

- PUSCH system information	
- PUSCH Identity	1
- PUSCH info	
- TFCS ID	1
- Common timeslot info	
- 2nd interleaving mode	Frame
- TFCI coding	16
- Puncturing Limit	0.40
- Repetition period	1
- Repetition length	1
- PUSCH timeslots and codes	
- Dynamic SF usage	FALSE
- First timeslot Code List	1
- Channelisation Code	As required by individual test below
- CHOISE more timeslots	As required by individual test below
- USCH TFS	As required by individual test below
- USCH TFCS	As required by individual test below

- PDSCH system information	
- PDSCH Iinformation	1
- PDSCH Identity	1
- PDSCH info	
- TFCS ID	1
- Common timeslot info	
- 2nd interleaving mode	Frame
- TFCI coding	16
- Puncturing Limit	0.40
- Repetition period	1
- Repetition length	1
- PDSCH timeslots and codes	As required by individual test below
- DSCH TFS	As required by individual test below
- DSCH TFCS	As required by individual test below

Uplink TFS for the 64 kbps USCH:

	TFI	**DTCH**	**SHCCH (SRB#5)**	**DCCH (SRB#1 ñ SRB#4)**
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	3x337	N/A	N/A
	TF4, bits	4x337	N/A	N/A

Uplink TFCS for the 64 kbps USCH:

TFCI	(DTCH, SHCCH, DCCH)
UL_USCH_TFC0	(TF0, TF0, TF0)
UL_USCH_TFC1	(TF1, TF0, TF0)
UL_USCH_TFC2	(TF2, TF0, TF0)
UL_USCH_TFC3	(TF3, TF0, TF0)
UL_USCH_TFC4	(TF4, TF0, TF0)
UL_USCH_TFC5	(TF0, TF1, TF0)
UL_USCH_TFC6	(TF1, TF1, TF0)
UL_USCH_TFC7	(TF2, TF1, TF0)
UL_USCH_TFC8	(TF3, TF1, TF0)
UL_USCH_TFC9	(TF4, TF1, TF0)
UL_USCH_TFC10	(TF0, TF0, TF1)
UL_USCH_TFC11	(TF1, TF0, TF1)
UL_USCH_TFC12	(TF2, TF0, TF1)
UL_USCH_TFC13	(TF3, TF0, TF1)
UL_USCH_TFC14	(TF4, TF0, TF1)
UL_USCH_TFC15	(TF0, TF1, TF1)
UL_USCH_TFC16	(TF1, TF1, TF1)
UL_USCH_TFC17	(TF2, TF1, TF1)
UL_USCH_TFC18	(TF3, TF1, TF1)
UL_USCH_TFC19	(TF4, TF1, TF1)

Uplink TFS for the RACH without DTCH:

	TFI	**CCCH (SRB#0)**	**DCCH (SRB#1 ñ SRB#5)**	**SHCCH (SRB#5)**
TFS	TF0, bits	1x170	1x170	1x170

Uplink TFCS for the RACH without DTCH:

TFCI	(CCCH, DCCH, SHCCH)
UL_RACH_TFC0	(TF0)

Uplink TFS for the RACH with DTCH:

	TFI	DTCH (20 ms TTI)	CCCH (SRB#0)	DCCH (SRB#1 ñ SRB#4)	SHCCH (SRB#5)
TFS	TF0, bits	1x170	1x170	1x170	1x170

Uplink TFCS for the RACH with DTCH:

TFCI	(DTCH, CCCH, DCCH, SHCCH)
UL_RACH_DTCH_TFC0	(TF0)

Downlink TFS for 256 kbps DSCH:

	TFI	DTCH(256kbps)	SHCCH SRB#5	DCCH SRB#1-#4
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A

Downlink TFCS for the 256 kbps DSCH:

TFCI	DTCH, SHCCH, DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF0, TF1, TF0),
DL_DSCH_TFC6	(TF1, TF1, TF0),
DL_DSCH_TFC7	(TF2, TF1, TF0),
DL_DSCH_TFC8	(TF3, TF1, TF0),
DL_DSCH_TFC9	(TF4, TF1, TF0),
DL_DSCH_TFC10	(TF0, TF0, TF1),
DL_DSCH_TFC11	(TF1, TF0, TF1),
DL_DSCH_TFC12	(TF2, TF0, TF1),
DL_DSCH_TFC13	(TF3, TF0, TF1),
DL_DSCH_TFC14	(TF4, TF0, TF1),
DL_DSCH_TFC15	(TF0, TF1, TF1),
DL_DSCH_TFC16	(TF1, TF1, TF1),
DL_DSCH_TFC17	(TF2, TF1, TF1),
DL_DSCH_TFC18	(TF3, TF1, TF1),
DL_DSCH_TFC19	(TF4, TF1, TF1)

Downlink TFS for FACH without DTCH:

	TFI	CCCH/DCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	3x171
	TF4 ,bits	4x171

Downlink TFCS for FACH without DTCH:

TFCI	CCCH/DCCH/SHCCH/BCCH
DL_FACH_TFC0	TF0
DL_FACH_TFC1	TF1
DL_FACH_TFC2	TF2
DL_FACH_TFC3	TF3
DL_FACH_TFC4	TF4

Downlink TFS for FACH with DTCH:

	TFI	DTCH/CCCH/DCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	1x363
	TF4 ,bits	3x171
	TF5, bits	4x171
	TF6, bits	2x363

Downlink TFCS for FACH with DTCH:

TFCI	DTCH/CCCH/DCCH/SHCCH/BCCH
DL_FACH_TFC0_DTCH	TF0
DL_FACH_TFC1_DTCH	TF1
DL_FACH_TFC2_DTCH	TF2
DL_FACH_TFC3_DTCH	TF3
DL_FACH_TFC4_DTCH	TF4
DL_FACH_TFC5_DTCH	TF5
DL_FACH_TFC6_DTCH	TF6

Sub-tests for RACH/FACH:

- See Section 18.2.6.1

Sub-tests ñ USCH & DSCH:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552	DTCH: 2552

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10, UL_TFC11, and UL_TFC15 are part of the minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.1.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO **BEARER SETUP COMPLETE**.
2. At step A10i or B10b the UE shall send PUSCH **CAPACITY REQUEST**
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x337).
- for sub-test 2: DTCH/TF2 (2x337).
- for sub-test 3: DTCH/TF3 (3x337).
- for sub-test 4: DTCH/TF4 (4x337).

 4. At step 15 the UE shall return

- for sub-test 1, 2, and 4: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on DTCH having the first **1272** bits equal to the content as the DL RLC SDU sent by the SS in the downlink.

18.2.3.1.2 Interactive or background / UL: 64(145 bit TBS ñ 20 ms TTI) DL: 256 kbps (337 bit TBS ñ 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.1.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.1** for the downlink **10 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the Interactive/**Background 64 kbps UL PS RAB**, **SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an Interactive/**Background 64** kbps UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the Interactive/Background **256 kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background **256 kbps** UL PS RAB channel has a **145 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 256 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.1.2.3 Method of test

Uplink TFS for the 64 kbps USCH ñ 145 bit TBS & 20 ms TTI:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 ñ SRB#4)
TFS	TF0, bits	0x145	0x169	0x149
	TF1, bits	1x145	1x169	1x149
	TF2, bits	3x145	N/A	N/A
	TF3, bits	7x145	N/A	N/A
	TF4, bits	10x145	N/A	N/A

Uplink TFCS for the 64 kbps USCH ñ 145 bit TBS & 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for 256 kbps DSCH ñ 10 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for 256 kbps DSCH - 10 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests ñ USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (128x1)x3 - 8	DTCH: 312 (320 x 1) - 8
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (128x3)x2 - 8	DTCH: 632 (320 x 2) - 8
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128) x 2 - 8	DTCH: 1272 (4 x 320) - 8
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128) x 2 - 8	DTCH: 2552 (8 x 320) - 8

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.1.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send **RADIO BEARER SETUP COMPLETE**.
- 2. At step A10i or B10b the UE shall send PUSCH **CAPACITY REQUEST**
- 3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x145).
- for sub-test 2: DTCH/TF2 (3x145).
- for sub-test 3: DTCH/TF3 (7x145).
- for sub-test 4: DTCH/TF4 (10x145).

 4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on DTCH having the first 312 bits equal to the content of the DL RLC SDU sent by the SS.
- for sub-test 2: an RLC SDU on DTCH having the first 632 bits equal to the content of the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on DTCH having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS.
- for sub-test 4: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS

18.2.3.1.3 Interactive or background / UL: 64(337 bit TBS ñ 20 ms TTI) DL: 256 kbps (337 bit TBS ñ 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.1.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.1** for the downlink **20 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an Interactive/**Background 64** kbps UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the 256 kbps Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a **20 ms** TTI. The **Interactive/Background 256 kbps** UL PS RAB channel has a **337 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 256 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.1.3.3 Method of test

Uplink TFS for the 64 kbps USCH ñ 337 bit TBS & 20 ms TTI:

- See corresponding table in Section 18.2.3.1.1.3

Uplink TFS for the 64 kbps USCH ñ 337 bit TBS & 20 ms TTI:

- See corresponding table in Section 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in Section 18.2.3.1.1.3

Uplink TFCS for the RACH without DTCH:

- See corresponding table in Section 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in Section 18.2.3.1.1.3

Uplink TFCS for the RACH with DTCH:

- See corresponding table in Section 18.2.3.1.1.3

Downlink TFS for 256 kbps DSCH ñ 337 bit TBS & 20 ms TTI:

	TFI	**DTCH(256kbps)**	**SHCCH SRB#5**	**DCCH SRB#1-#4**
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A

Downlink TFS for 256 kbps DSCH ñ 337 bit TBS & 20 ms TTI:

TFCI	DTCH, SHCCH, DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF0, TF1, TF0),
DL_DSCH_TFC8	(TF1, TF1, TF0),
DL_DSCH_TFC9	(TF2, TF1, TF0),
DL_DSCH_TFC10	(TF3, TF1, TF0),
DL_DSCH_TFC11	(TF4, TF1, TF0),
DL_DSCH_TFC12	(TF5, TF1, TF0),
DL_DSCH_TFC13	(TF6, TF1, TF0),
DL_DSCH_TFC14	(TF0, TF0, TF1),
DL_DSCH_TFC15	(TF1, TF0, TF1),
DL_DSCH_TFC16	(TF2, TF0, TF1),
DL_DSCH_TFC17	(TF3, TF0, TF1),
DL_DSCH_TFC18	(TF4, TF0, TF1),
DL_DSCH_TFC19	(TF5, TF0, TF1),
DL_DSCH_TFC20	(TF6, TF0, TF1),
DL_DSCH_TFC21	(TF0, TF1, TF1),
DL_DSCH_TFC22	(TF1, TF1, TF1),
DL_DSCH_TFC23	(TF2, TF1, TF1),
DL_DSCH_TFC24	(TF3, TF1, TF1),
DL_DSCH_TFC25	(TF4, TF1, TF1),
DL_DSCH_TFC26	(TF5, TF1, TF1),
DL_DSCH_TFC27	(TF6, TF1, TF1)

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in Section 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in Section 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in Section 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in Section 18.2.3.1.1.3

Sub-tests for RACH/FACH ñ 20 ms TTI:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 20 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-tests ñ USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 20 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312 (1 x 320) - 8	DTCH: 312 (1 x 320) - 8
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632 (2 x 320) - 8	DTCH: 632 (1 x 320) - 8
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912 (3 x 320) - 8	DTCH: 1272 (4 x 320) - 8
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (4 x 320) x 2 - 8	DTCH: 2552 (8 x 320) - 8
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (4 x 320) x 3 - 8	DTCH: 3832 (12 x 320) - 8

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (4 x 320) x 4 - 8	DTCH: 5112 (16 x 320) - 8

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.2.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

- 1. At step 10 the UE shall send RADIO **BEARER SETUP COMPLETE.**
- 2. At step A10i or B10b the UE shall send **PUSCH CAPACITY REQUEST**
- 3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x337).
- for sub-test 2: DTCH/TF2 (2x337).
- for sub-test 3: DTCH/TF3 (3x337).
- for sub-test 4, 5, and 6: DTCH/TF4 (4x337).

- 4. At step 15 the UE shall return

- for sub-test 1, 2, 4, 5, and 6: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on DTCH having the first **1272** bits equal content as the DL RLC SDU sent by the SS.

18.2.3.1.4 Interactive or background / UL: 64(145 bit TBS ñ 20 ms TTI) DL: 256 kbps (337 bit TBS ñ 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH 64 kbps + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.1.4.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.1.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.1** for the downlink **20 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB**, **SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an **Interactive/Background 64 kbps** UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the 256 kbps Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a **20** ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a **145 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 256 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.1.4.3 Method of test

Uplink TFS for the 64 kbps USCH ñ 145 bit TBS & 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH ñ 145 bit TBS & 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for 256 kbps DSCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.3.2

Downlink TFCS for the 256 kbps DSCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.3.2

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests ñ USCH (145 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (128 x 1)x3 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (128 x 3) x 2 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128) x 2 - 8	DTCH: 1272

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19,	DTCH: 2552 (10x128) x 2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (10x128) x 3 - 8	DTCH: 3832 (12 x 320) - 8
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (10x128) x 4 - 8	DTCH: 5112 (16 x 320) - 8

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.1.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send **RADIO BEARER SETUP** COMPLETE.
2. At step A10i or B10b the UE shall send **PUSCH CAPACITY REQUEST.**
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x145).
- for sub-test 2: DTCH/TF2 (3x145).
- for sub-test 3: DTCH/TF3 (7x145).
- for sub-test 4, 5 and 6: DTCH/TF4 (10x145).

4. At step 15 the UE shall return

- for sub-test 4 to 6: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

- for sub-test 1: an RLC SDU on DTCH having the first **312** bits equal content as the DL RLC SDU sent by the SS.

- for sub-test 2: an RLC SDU on DTCH having the first **632** bits equal content as the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on DTCH having the first **1272** bits equal content as the DL RLC SDU sent by the SS.

18.2.3.2 Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.1 Interactive or background / UL: 64(337 bit TBS ñ 20 ms TTI) DL: 384 kbps (337 bit TBS ñ 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.2.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.2** for the downlink **10 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB**, **SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an **Interactive/Background 64 kbps** UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the **Interactive/Background 384 kbps** PS RAB, the SHCCH and the DCC. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background **384 kbps** UL PS RAB channel has a **337 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.2.1.3 Method of Test

Uplink TFS for the 64 kbps USCH ñ 337 bit TBS & 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the 64 kbps USCH ñ 337 bit TBS & 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for 384 kbps DSCH ñ 337 bit TBS & 10 ms TTI:

	TFI	**DTCH(384 kbps)**	**SHCCH SRB#5**	**DCCH SRB#1-#4**
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A

Downlink TFS for 384 kbps DSCH ñ 337 bit TBS & 10 ms TTI:

TFCI	DTCH,SHCCH,DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF0, TF1, TF0),
DL_DSCH_TFC7	(TF1, TF1, TF0),
DL_DSCH_TFC8	(TF2, TF1, TF0),
DL_DSCH_TFC9	(TF3, TF1, TF0),
DL_DSCH_TFC10	(TF4, TF1, TF0),
DL_DSCH_TFC11	(TF5, TF1, TF0),
DL_DSCH_TFC12	(TF0, TF0, TF1),
DL_DSCH_TFC13	(TF1, TF0, TF1),
DL_DSCH_TFC14	(TF2, TF0, TF1),
DL_DSCH_TFC15	(TF3, TF0, TF1),
DL_DSCH_TFC16	(TF4, TF0, TF1),
DL_DSCH_TFC17	(TF5, TF0, TF1),
DL_DSCH_TFC18	(TF0, TF1, TF1),
DL_DSCH_TFC19	(TF1, TF1, TF1),
DL_DSCH_TFC20	(TF2, TF1, TF1),
DL_DSCH_TFC21	(TF3, TF1, TF1),
DL_DSCH_TFC22	(TF4, TF1, TF1)
DL_DSCH_TFC23	(TF5, TF1, TF1)

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-tests for RACH/FACH ñ 20 ms TTI:

- See Section 18.2.6.1

Sub-tests ñ USCH (337 bit TBS & 20 ms TTI) & DSCH (337 bit TBS & 10 ms TTI):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 312 (1x320)x1 - 8	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 632 (2x320)x1 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1912 (3 x 320) x 2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (4 x 320) x 2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 3832 (4 x 320) x 3 - 8	RB5: 3832

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. .
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.2.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send **RADIO BEARER SETUP COMPLETE**.

2. At step A10i or B10b the UE shall send **PUSCH CAPACITY REQUEST**

3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x337).
- for sub-test 2: DTCH /TF2 (2x337).
- for sub-test 3: DTCH /TF3 (3x337).
- for sub-test 4 and 5: DTCH /TF4 (4x337)

4. At step 15 the UE shall return

- for sub-test 1, 2, 4, 5: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the first **1272** bits equal to the content of the DL RLC SDU sent by the SS

18.2.3.2.2 Interactive or background / UL: 64(145 bit TBS ñ 20 ms TTI) DL: 384 kbps / PS RAB/10 ms TTI/145 bits TBS (337 bit TBS ñ 10 ms TTI) + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.2.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.2** for the downlink **10 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB, SHCCH, and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an **Interactive/Background 64** kbps UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the Interactive/Background **384 kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a **145 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384 kbps PS RAB**.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.2.2.3 Method of test

Uplink TFS for the 64 kbps USCH ñ Transport Block Size 145 bits:

- See corresponding table in 18.2.3.1.1.3

U plink TFCS for the 64 kbps USCH ñ Transport Block Size 145 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for the 384 kbps DSCH ñ 10 ms TTI:

- See corresponding table in 18.2.3.2.1.3

Downlink TFCS for the 384 kbps DSCH - 10 ms TTI:

- See corresponding table in 18.2.3.2.1.3

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in **18.2.3.1.1.3**

Sub-tests for RACH/FACH ñ 20 ms TTI:

- See Section 18.2.6.1

Sub-tests for USCH/DSCH ñ 10 ms TTI & UL 145 bit TBS and DL 337 bit TBS:

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1		DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (1x128)x3 - 8	DTCH: 312

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (3x128)x2 - 8	DTCH: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128)x2 - 8	DTCH: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128)x2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, DL_DSCH_TFC12, DL_DSCH_TFC18, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 3832 (3x128)x10 - 8	RB5: 3832

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. .
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.2.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST

3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x145).

- for sub-test 2: DTCH /TF2 (3x145).
- for sub-test 3: DTCH /TF3 (7x145).
- for sub-test 4: RB5/TF4 (10x145)

 4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on RB5 having the first 312 bits equal to the content of the DL RLC SDU sent by the SS
- for sub-test 2: an RLC SDU on RB5 having the first 632 bits equal to the content of the DL RLC SDU sent by the SS
- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS
- for sub-tests 4, 5: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.2.3 Interactive or background / UL: 64 (337 bit TBS ñ 20 ms TTI) DL: 384 kbps (337 bit TBS ñ 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.2.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.2** for the downlink **20 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB**, **SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an **Interactive/Background 64** kbps UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the Interactive/Background **384 kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a **337 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.2.3.3 Method of Test

- See 18.2.1.3 for test procedure

Uplink TFS for the 64 kbps USCH ñ Transport Block Size 337 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH ñ Transport Block Size 337 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for the 384 kbps DSCH ñ 20 ms TTI:

	TFI	**DTCH(384 kbps)**	**SHCCH SRB#5**	**DCCH SRB#1-#4**
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A
	TF7, bits	20x337	N/A	N/A
	TF8, bits	24x337	N/A	N/A

Downlink TFCS for the 384 kbps DSCH - 20 ms TTI:

TFCI	DTCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF0, TF1, TF0),
DL_DSCH_TFC10	(TF1, TF1, TF0),
DL_DSCH_TFC11	(TF2, TF1, TF0),
DL_DSCH_TFC12	(TF3, TF1, TF0),
DL_DSCH_TFC13	(TF4, TF1, TF0),
DL_DSCH_TFC14	(TF5, TF1, TF0),
DL_DSCH_TFC15	(TF6, TF1, TF0),
DL_DSCH_TFC16	(TF7, TF1, TF0),
DL_DSCH_TFC17	(TF8, TF1, TF0),
DL_DSCH_TFC18	(TF0, TF0, TF1),
DL_DSCH_TFC19	(TF1, TF0, TF1),
DL_DSCH_TFC20	(TF2, TF0, TF1),
DL_DSCH_TFC21	(TF3, TF0, TF1),
DL_DSCH_TFC22	(TF4, TF0, TF1),
DL_DSCH_TFC23	(TF5, TF0, TF1),
DL_DSCH_TFC24	(TF6, TF0, TF1),
DL_DSCH_TFC25	(TF7, TF0, TF1),
DL_DSCH_TFC26	(TF8, TF0, TF1),
DL_DSCH_TFC27	(TF0, TF1, TF1),
DL_DSCH_TFC28	(TF1, TF1, TF1),
DL_DSCH_TFC29	(TF2, TF1, TF1),
DL_DSCH_TFC30	(TF3, TF1, TF1),
DL_DSCH_TFC31	(TF4, TF1, TF1),
DL_DSCH_TFC32	(TF5, TF1, TF1),
DL_DSCH_TFC33	(TF6, TF1, TF1)
DL_DSCH_TFC34	(TF7, TF1, TF1)
DL_DSCH_TFC35	(TF8, TF1, TF1)

Downlink TFS for FACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-tests for RACH/FACH ñ 20 ms TTI:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 20 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6 UL_USCH_TFC10 UL_USCH_TFC11 UL_USCH_TFC15 UL_USCH_TFC16	DTCH: 312	DTCH: 312
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7 UL_USCH_TFC10 UL_USCH_TFC12 UL_USCH_TFC15 UL_USCH_TFC17	RB5: 632	RB5: 632
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_USCH_TFC10 UL_USCH_TFC13 UL_USCH_TFC15 UL_USCH_TFC18	RB5: 1912 (3x320) x 2 - 8	RB5: 1272
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 2552	RB5: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 3832	RB5: 3832
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9 DL_DSCH_TFC18 DL_DSCH_TFC27 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10 UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_USCH_TFC10 UL_USCH_TFC14 UL_USCH_TFC15 UL_USCH_TFC19	RB5: 5112	RB5: 5112

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, DL_DSCH_TFC18, DL_DSCH_TFC27, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 6392	RB5: 6392
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_DSCH_TFC10, DL_DSCH_TFC15, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	RB5: 6392	RB5: 6392
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. . RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.3 for test procedure.

18.2.3.2.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST

3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x337).
- for sub-test 2: DTCH /TF2 (2x337).
- for sub-test 3: DTCH /TF3 (3x337).
- for sub-test 4, 5, 6, 7, and 8: DTCH /TF4 (4x337)

4. At step 15 the UE shall return

- for sub-test 1, 2, 4, 5, 7 and 8: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS

18.2.3.2.4 Interactive or background / UL: 64 (145 bit TBS ñ 20 ms TTI) DL: 384 kbps (337 bit TBS ñ 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.2.4.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.2.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.1** for the downlink **20 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an **Interactive/Background 64** kbps UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the 384 **kbps** Interactive/Background PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a **20** ms TTI. The Interactive/Background **384 kbps** UL PS RAB channel has a **145 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384** kbps PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.2.4.3 Method of test

Uplink TFCS for the 64 kbps USCH ñ Transport Block Size 145 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH ñ Transport Block Size 145 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for the 384 kbps DSCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.3.2

Downlink TFCS for the 384 kbps DSCH - 20 ms TTI:

- See corresponding table in 18.2.3.1.3.2

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 20 ms TTI & UL TBS (145 bit) and DL TBS (337 bit):

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1		DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 376 (1x128)x3 - 8	DTCH: 312
2		DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 760 (3x128)x2 - 8	DTCH: 632
3		DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 1784 (7x128)x2 - 8	DTCH: 1272

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 2552 (10x128)x2 - 8	DTCH: 2552
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 3832 (10x128)x3 - 8	DTCH: 3832
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (10x128)x4 - 8	DTCH: 5112
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 6392 (10x128)x5 - 8	DTCH: 6392
8	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, DL_DSCH_TFC14, DL_DSCH_TFC21, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (10x128)x6 - 8	DTCH: 7672

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.2.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST

3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x145).
- for sub-test 2: DTCH/TF2 (3x145).
- for sub-test 3: DTCH/TF3 (7x145).
- for sub-test 4, 5, 6, 7, and 8: DTCH/TF4 (10x145).

4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on DTCH having the first **312** bits equal content as the DL RLC SDU sent by the SS.
- for sub-test 2: an RLC SDU on DTCH having the first **632** bits equal content as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on DTCH having the first **1272** bits equal content as the DL RLC SDU sent by the SS.
- for sub-test 4,5,6,7 and 8: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.3 Interactive or background / UL: 64 DL: 2048 kbps/ PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.1 Interactive or background / UL: 64 (337 bit TBS ñ 20 ms TTI) DL: 2048 kbps (657 bit TBS ñ 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.3.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.3** for the downlink **10 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB**, **SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an **Interactive/Background 64 kbps** UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the Interactive/Background **2048 kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background **2048 kbps** UL PS RAB channel has a **337 bit** Transport Block Size (TBS).

- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 2048 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.3.1.3 Method of test

Uplink TFS for the 64 kbps USCH ñ Transport Block Size 337 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH ñ Transport Block Size 337 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for 2048 kbps DSCH ñ 10 ms TTI:

	TFI	**DTCH(2048 kbps)**	**SHCCH SRB#5**	**DCCH SRB#1-#4**
TFS	TF0, bits	0x657	0x169	0x149
	TF1, bits	1x657	1x169	1x149
	TF2, bits	2x657	N/A	N/A
	TF3, bits	4x657	N/A	N/A
	TF4, bits	8x657	N/A	N/A
	TF5, bits	12x657	N/A	N/A
	TF6, bits	16x657	N/A	N/A
	TF7, bits	20x657	N/A	N/A
	TF8, bits	24x657	N/A	N/A
	TF9, bits	28x657	N/A	N/A
	TF10, bits	30x657	N/A	N/A

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI:

TFCI	DTCH,SHCCH,DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF9, TF0, TF0),
DL_DSCH_TFC10	(TF10, TF0, TF0),
DL_DSCH_TFC11	(TF0, TF1, TF0),
DL_DSCH_TFC12	(TF1, TF1, TF0),
DL_DSCH_TFC13	(TF2, TF1, TF0),
DL_DSCH_TFC14	(TF3, TF1, TF0),
DL_DSCH_TFC15	(TF4, TF1, TF0),
DL_DSCH_TFC16	(TF5, TF1, TF0),
DL_DSCH_TFC17	(TF6, TF1, TF0),
DL_DSCH_TFC18	(TF7, TF1, TF0),
DL_DSCH_TFC19	(TF8, TF1, TF0),
DL_DSCH_TFC20	(TF9, TF1, TF0),
DL_DSCH_TFC21	(TF0, TF0, TF1),
DL_DSCH_TFC22	(TF1, TF0, TF1),
DL_DSCH_TFC23	(TF2, TF0, TF1),
DL_DSCH_TFC24	(TF3, TF0, TF1),
DL_DSCH_TFC25	(TF4, TF0, TF1),
DL_DSCH_TFC26	(TF5, TF0, TF1),
DL_DSCH_TFC27	(TF6, TF0, TF1),
DL_DSCH_TFC28	(TF7, TF0, TF1),
DL_DSCH_TFC29	(TF8, TF0, TF1),
DL_DSCH_TFC30	(TF9, TF0, TF1),
DL_DSCH_TFC31	(TF0, TF1, TF1),
DL_DSCH_TFC32	(TF1, TF1, TF1),
DL_DSCH_TFC33	(TF2, TF1, TF1),
DL_DSCH_TFC34	(TF3, TF1, TF1),
DL_DSCH_TFC35	(TF4, TF1, TF1),
DL_DSCH_TFC36	(TF5, TF1, TF1),
DL_DSCH_TFC37	(TF6, TF1, TF1),
DL_DSCH_TFC38	(TF7, TF1, TF1),
DL_DSCH_TFC39	(TF8, TF1, TF1),
DL_DSCH_TFC40	(TF9, TF1, TF1),

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 10 ms TTI & UL TBS (337 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (320 x1) x 2 - 8	RB5: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2872 (320 x3) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (320 x4) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (320 x4) x6 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (320 x4) x8 - 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4,	DTCH: 12792 (320 x4) x10 - 8	DTCH: 12792

			DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19		
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (320 x4) x12 - 8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (320 x4) x14 - 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (320 x4) x16 - 8	DTCH: 20472

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.3.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x337).
- for sub-test 2: DTCH/TF2 (2x337).
- for sub-test 3: DTCH/TF3 (3x337).
- for sub-test 4 to 10: DTCH/TF4 (4x337)

3. At step 15 the UE shall return

- for sub-test 1, 2, 4 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

- for sub-test 3: an RLC SDU on DTCH having the first 2552 bits equal to the content of the DL RLC SDU sent by the SS.

18.2.3.3.2 Interactive or background / UL: 64(145 bit TBS ñ 20 ms TTI) DL: 2048 kbps (657 bit TBS ñ 10 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.3.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.2** for the downlink **10 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB, SHCCH and the DCCH.**

- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an **Interactive/Background 64** kbps UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the Interactive/Background 384 **kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 256 kbps UL PS RAB channel has a **145 bit** Transport Block Size (TBS).

- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384 kbps PS RAB**.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.3.2.3 Method of test

Uplink TFS for the 64 kbps USCH ñ Transport Block Size 145 bits:

- See corresponding table in 18.2.3.1.1.3

U plink TFCS for the 64 kbps USCH ñ Transport Block Size 145 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for DSCH ñ 10 ms TTI:

- See corresponding table in 18.2.3.3.1.3

Downlink TFCS for DSCH - 10 ms TTI:

- See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-tests for RACH/FACH ñ 20 ms TTI:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 10 ms TTI & UL TBS (145 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (128 x1) x5 - 8	RB5: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1528 (128 x3) x4 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18,	DTCH: 2680 (128 x7) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (128 x10) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_SCH_TFC19	DTCH: 7672 (128 x10) x6- 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (128 x10) x8- 8	DTCH: 10232
7	DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4,	DTCH: 12792 (128 x10)x10- 8	DTCH: 12792

			DL_DSCH_TFC31, DL_DSCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19		
8	DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (128 x10)x12-8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (128 x10)x14-8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, DL_DSCH_TFC21, DL_DSCH_TFC31, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (128 x10)x16-8	DTCH: 20472

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

See 18.2.1.3 for test procedure.

18.2.3.2.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

 1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

 2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST

 3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x145).
- for sub-test 2: DTCH /TF2 (3x145).
- for sub-test 3: DTCH /TF3 (7x145).
- for sub-test 4 to 10: DTCH /TF4 (10x145)

 4. At step 15 the UE shall return

- for sub-test 1, 4, 5, 6, 7, 8, 9, and 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

- for sub-test 2: an RLC SDU on RB5 having the first 1272 bits equal to the content of the DL RLC SDU sent by the SS

- for sub-test 3: an RLC SDU on RB5 having the first 2552 bits equal to the content of the DL RLC SDU sent by the SS

18.2.3.3.3 Interactive or background / UL: 64 (337 bit TBS ñ 20 ms TTI) DL: 2048 kbps (657 bit TBS ñ 20 ms TTI) / PS RAB+ UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.3** for the downlink **20 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB**, **SHCCH and the DCCH.**

- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an **Interactive/Background 64 kbps** UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the Interactive/Background 2048 **kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background 2048 **kbps** UL PS RAB channel has a **337 bit** Transport Block Size (TBS).

- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 2048 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.3.3.3 Method of test

Uplink TFS for the USCH ñ Transport Block Size 337 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the USCH ñ Transport Block Size 337 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for 2048 kbps DSCH ñ 20 ms TTI:

	TFI	**DTCH(2048 kbps)**	**SHCCH SRB#5**	**DCCH SRB#1-#4**
	TF0, bits	0x657	0x169	0x149

TFS

TF1, bits	1x657	1x169	1x149
TF2, bits	2x657	N/A	N/A
TF3, bits	4x657	N/A	N/A
TF4, bits	8x657	N/A	N/A
TF5, bits	12x657	N/A	N/A
TF6, bits	16x657	N/A	N/A
TF7, bits	20x657	N/A	N/A
TF8, bits	24x657	N/A	N/A
TF9, bits	28x657	N/A	N/A
TF10, bits	32x657	N/A	N/A
TF11, bits	36x657	N/A	N/A
TF12, bits	40x657	N/A	N/A
TF13, bits	44x657	N/A	N/A
TF14, bits	48x657	N/A	N/A
TF15, bits	52x657	N/A	N/A
TF16, bits	56x657	N/A	N/A
TF17, bits	60x657	N/A	N/A
TF18, bits	64x657	N/A	**N/A**

Downlink TFCS for 2048 kbps DSCH - 20 ms TTI:

TFCI	DTCH,SHCCH,DCCH
DL_DSCH_TFC0	(TF0, TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0, TF0),
DL_DSCH_TFC2	(TF2, TF0, TF0),
DL_DSCH_TFC3	(TF3, TF0, TF0),
DL_DSCH_TFC4	(TF4, TF0, TF0),
DL_DSCH_TFC5	(TF5, TF0, TF0),
DL_DSCH_TFC6	(TF6, TF0, TF0),
DL_DSCH_TFC7	(TF7, TF0, TF0),
DL_DSCH_TFC8	(TF8, TF0, TF0),
DL_DSCH_TFC9	(TF9, TF0, TF0),
DL_DSCH_TFC10	(TF10, TF0, TF0),
DL_DSCH_TFC11	(TF11, TF0, TF0),
DL_DSCH_TFC12	(TF12, TF0, TF0),
DL_DSCH_TFC13	(TF13, TF0, TF0),
DL_DSCH_TFC14	(TF14, TF0, TF0),
DL_DSCH_TFC15	(TF15, TF0, TF0),
DL_DSCH_TFC16	(TF16, TF0, TF0),
DL_DSCH_TFC17	(TF17, TF0, TF0),
DL_DSCH_TFC18	(TF18, TF0, TF0),
DL_DSCH_TFC19	(TF0, TF1, TF0),
DL_DSCH_TFC20	(TF1, TF1, TF0),
DL_DSCH_TFC21	(TF2, TF1, TF0),
DL_DSCH_TFC22	(TF3, TF1, TF0),
DL_DSCH_TFC23	(TF4, TF1, TF0),
DL_DSCH_TFC24	(TF5, TF1, TF0),
DL_DSCH_TFC25	(TF6, TF1, TF0),
DL_DSCH_TFC26	(TF7, TF1, TF0),
DL_DSCH_TFC27	(TF8, TF1, TF0),
DL_DSCH_TFC28	(TF9, TF1, TF0),

DL_DSCH_TFC29	(TF10, TF1, TF0),
DL_DSCH_TFC30	(TF11, TF1, TF0),
DL_DSCH_TFC31	(TF12, TF1, TF0),
DL_DSCH_TFC32	(TF13, TF1, TF0),
DL_DSCH_TFC33	(TF14, TF1, TF0),
DL_DSCH_TFC34	(TF15, TF1, TF0),
DL_DSCH_TFC35	(TF16, TF1, TF0),
DL_DSCH_TFC36	(TF17, TF1, TF0),
DL_DSCH_TFC37	(TF18, TF1, TF0),
DL_DSCH_TFC38	(TF0, TF0, TF1),
DL_DSCH_TFC39	(TF1, TF0, TF1),
DL_DSCH_TFC40	(TF2, TF0, TF1),
DL_DSCH_TFC41	(TF3, TF0, TF1),
DL_DSCH_TFC42	(TF4, TF0, TF1),
DL_DSCH_TFC43	(TF5, TF0, TF1),
DL_DSCH_TFC44	(TF6, TF0, TF1),
DL_DSCH_TFC45	(TF7, TF0, TF1),
DL_DSCH_TFC46	(TF8, TF0, TF1),
DL_DSCH_TFC47	(TF9, TF0, TF1),
DL_DSCH_TFC48	(TF10, TF0, TF1),
DL_DSCH_TFC49	(TF11, TF0, TF1),
DL_DSCH_TFC50	(TF12, TF0, TF1),
DL_DSCH_TFC51	(TF13, TF0, TF1),
DL_DSCH_TFC52	(TF14, TF0, TF1),
DL_DSCH_TFC53	(TF15, TF0, TF1),
DL_DSCH_TFC54	(TF16, TF0, TF1),
DL_DSCH_TFC55	(TF17, TF0, TF1),
DL_DSCH_TFC56	(TF18, TF0, TF1),
DL_DSCH_TFC57	(TF0, TF1, TF1),
DL_DSCH_TFC58	(TF1, TF1, TF1),
DL_DSCH_TFC59	(TF2, TF1, TF1),
DL_DSCH_TFC61	(TF3, TF1, TF1),
DL_DSCH_TFC62	(TF4, TF1, TF1),
DL_DSCH_TFC63	(TF5, TF1, TF1),
DL_DSCH_TFC64	(TF6, TF1, TF1),
DL_DSCH_TFC65	(TF7, TF1, TF1),
DL_DSCH_TFC66	(TF8, TF1, TF1),
DL_DSCH_TFC67	(TF9, TF1, TF1),
DL_DSCH_TFC68	(TF10, TF1, TF1),
DL_DSCH_TFC69	(TF11, TF1, TF1),
DL_DSCH_TFC70	(TF12, TF1, TF1),
DL_DSCH_TFC71	(TF13, TF1, TF1),
DL_DSCH_TFC72	(TF14, TF1, TF1),
DL_DSCH_TFC73	(TF16, TF1, TF1),
DL_DSCH_TFC74	(TF17, TF1, TF1),
DL_DSCH_TFC75	(TF18, TF1, TF1),

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 20 ms TTI & UL TBS (337 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (320 x1) x2 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2872 (320 x3) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (320 x4) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (320 x4) x6 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (320 x4) x8 - 8	DTCH: 10232

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
7		DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (320 x4) x10 - 8	DTCH: 12792
8		DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (320 x4) x12 - 8	DTCH: 15352
9		DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (320 x4) x14 - 8	DTCH: 17912
10		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (320 x4) x16 - 8	DTCH: 20472
11		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 25592 (320 x4) x20 - 8	DTCH: 25592

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
13		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 28152 (320 x4) x22 - 8	DTCH: 28152
14		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 30712 (320 x4) x24 - 8	DTCH: 30712
15		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 33272 (320 x4) x26 - 8	DTCH: 33272
16		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 35832 (320 x4) x28 - 8	DTCH: 35832
17		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 38392 (320 x4) x30 - 8	DTCH: 38392
18		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 40952 (320 x4) x32 - 8	DTCH: 40952

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.3 for test procedure.

18.2.3.3.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x337).
- for sub-test 2: DTCH/TF2 (2x337).
- for sub-test 3: DTCH/TF3 (3x337).
- for sub-tests 4 to 18: DTCH/TF4 (4x337).

3. At step 15 the UE shall return

- for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.3.4 Interactive or background / UL: 64(145 bit TBS ñ 20 ms TTI) DL: 2048 kbps (657 bit TBS ñ 20 ms TTI) / PS RAB + UL: 16.8 DL: 33.6 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.3.4.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.3.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.2** for the downlink **20 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the Interactive/**Background 64 kbps UL PS RAB, SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an Interactive/**Background 64 kbps** UL PS RAB.

On the **DL**

- The DSCH can carry combinations of the Interactive/Background 2048 **kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 20 **ms** TTI. The Interactive/Background 2048 **kbps** UL PS RAB channel has a **145 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 2048 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.3.4.3 Method of test

Uplink TFS for the 64 kbps USCH ñ Transport Block Size 145 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFCS for the 64 kbps USCH ñ Transport Block Size 145 bits:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.3

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for 2048 kbps DSCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.3.3.3

Downlink TFCS for 2048 kbps DSCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.3.3.3

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 20 ms TTI & UL TBS (145 bit) and DL TBS (657 bit):

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_USCH_TFC10, UL_USCH_TFC11, UL_USCH_TFC15, UL_USCH_TFC16	DTCH: 632 (128 x1) x5 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_USCH_TFC10, UL_USCH_TFC12, UL_USCH_TFC15, UL_USCH_TFC17	DTCH: 1528 (128 x3) x4 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_USCH_TFC10, UL_USCH_TFC13, UL_USCH_TFC15, UL_USCH_TFC18	DTCH: 2680 (128 x7) x3 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 5112 (128 x10) x4 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 7672 (128 x10) x6- 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 10232 (128x10) x8 - 8	DTCH: 10232

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
7		DL_DSCH_TFC7	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 12792 (128 x10)x10-8	DTCH: 12792
8		DL_DSCH_TFC8	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 15352 (128 x10)x12-8	DTCH: 15352
9		DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 17912 (128 x10)x14-8	DTCH: 17912
10		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 20472 (128 x10)x16-8	DTCH: 20472
11		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 25592 (128 x10) x20 - 8	DTCH: 25592

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
13		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 28152 (128 x10) x22 - 8	DTCH: 28152
14		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 30712 (128 x10) x24 - 8	DTCH: 30712
15		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 33272 (128 x10) x26 - 8	DTCH: 33272
16		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 35832 (128 x10) x28 - 8	DTCH: 35832
17		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 38392 (128 x10) x30 - 8	DTCH: 38392
18		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC14, UL_USCH_TFC15, UL_USCH_TFC19	DTCH: 40952 (128 x10) x32 - 8	DTCH: 40952

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC10 and UL_TFC15 are part of the minimum set of TFCIs NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.						

See 18.2.1.3 for test procedure.

18.2.3.3.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST

3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x145).
- for sub-test 2: DTCH/TF2 (3x145).
- for sub-test 3: DTCH/TF3 (7x145).
- for sub-tests 4 to 18: DTCH/TF4 (10x145).

4. At step 15 the UE shall return

- for sub-test 4 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.
- for sub-test 2: an RLC SDU on DTCH having the first 1272 bits equal to the contents as the DL RLC SDU sent by the SS.
- for sub-test 3: an RLC SDU on DTCH having the first 2552 bits equal to the contents as the DL RLC SDU sent by the SS.

18.2.3.4 Interactive or background / UL: 384 DL: 2048 kbps / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.1 Interactive or background / UL: 384 DL (337 bit TBS ñ 20 ms TTI): 2048 kbps (657 bit TBS ñ 10 ms TTI) / PS RAB+ UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.1.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.4.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.4** for the downlink **10 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the Interactive/**Background 384 kbps UL PS RAB**, **SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an Interactive/**Background 384** kbps UL PS RAB.

On the **DL**

- **The DSCH** can carry combinations of the Interactive/**Background 2048 kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background **384 kbps** UL PS RAB channel has a **337 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.4.1.3 Method of test

Uplink TFS for the 384 kbps USCH ñ Transport Block Size 337 bits:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 ñ SRB#4)
TFS	TF0, bits	0x337	0x169	0x149
	TF1, bits	1x337	1x169	1x149
	TF2, bits	2x337	N/A	N/A
	TF3, bits	4x337	N/A	N/A
	TF4, bits	8x337	N/A	N/A
	TF5, bits	12x337	N/A	N/A
	TF6, bits	16x337	N/A	N/A
	TF7, bits	20x337	N/A	N/A
	TF8, bits	24x337	N/A	N/A

Uplink TFCS for the 384 kbps USCH ñ Transport Block size 337 bits:

TFCI	(DTCH, SHCCH, DCCH)
UL_USCH_TFC0	(TF0, TF0, TF0),
UL_USCH_TFC1	(TF1, TF0, TF0),
UL_USCH_TFC2	(TF2, TF0, TF0),
UL_USCH_TFC3	(TF3, TF0, TF0),
UL_USCH_TFC4	(TF4, TF0, TF0),
UL_USCH_TFC5	(TF5, TF0, TF0),
UL_USCH_TFC6	(TF6, TF0, TF0),
UL_USCH_TFC7	(TF7, TF0, TF0),
UL_USCH_TFC8	(TF8, TF0, TF0),
UL_USCH_TFC9	(TF0, TF1, TF0),
UL_USCH_TFC10	(TF1, TF1, TF0),
UL_USCH_TFC11	(TF2, TF1, TF0),
UL_USCH_TFC12	(TF3, TF1, TF0),
UL_USCH_TFC13	(TF4, TF1, TF0),
UL_USCH_TFC14	(TF5, TF1, TF0),
UL_USCH_TFC15	(TF6, TF1, TF0),
UL_USCH_TFC16	(TF7, TF1, TF0),
UL_USCH_TFC17	(TF8, TF1, TF0),
UL_USCH_TFC18	(TF0, TF0, TF1),
UL_USCH_TFC19	(TF1, TF0, TF1),
UL_USCH_TFC20	(TF2, TF0, TF1),
UL_USCH_TFC21	(TF3, TF0, TF1),
UL_USCH_TFC22	(TF4, TF0, TF1),
UL_USCH_TFC23	(TF5, TF0, TF1),
UL_USCH_TFC24	(TF6, TF0, TF1),
UL_USCH_TFC25	(TF7, TF0, TF1),
UL_USCH_TFC26	(TF8, TF0, TF1),
UL_USCH_TFC27	(TF0, TF1, TF1),
UL_USCH_TFC28	(TF1, TF1, TF1),

UL_USCH_TFC29	(TF2, TF1, TF1),
UL_USCH_TFC30	(TF3, TF1, TF1),
UL_USCH_TFC31	(TF4, TF1, TF1),
UL_USCH_TFC32	(TF5, TF1, TF1),
UL_USCH_TFC33	(TF6, TF1, TF1),
UL_USCH_TFC34	(TF7, TF1, TF1),
UL_USCH_TFC35	(TF8, TF1, TF1),

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.2

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.2

Downlink TFS for 2048 kbps DSCH ñ 10 ms TTI:

- See corresponding table in 18.2.3.3.1.3

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI

- See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test		Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1		DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 312 (320 x1) x2 - 8	DTCH: 632
2		DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3		DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2552 (320 x4) x2 - 8	DTCH: 2552
4		DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (320 x8) x2 - 8	DTCH: 5112
5		DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 7672 (320 x12) x2 - 8	DTCH: 7672
6		DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 10232 (320 x16) x2 - 8	DTCH:10232
7		DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 12792 (320 x20) x2 - 8	DTCH: 12792

8		DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 15352 (320 x24) x2 - 8	DTCH: 1 5352
9		DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (320 x8) x7 - 8	DTCH: 17912
10		DL_DSCH_TFC10	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 19192 (320 x20) x3 - 8	DTCH: 19192

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC18 and UL_TFC27 are part of the minimum set of TFCIs

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

18.2.3.4.1.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x337).
- for sub-test 2: DTCH/TF2 (2x337).
- for sub-test 3: DTCH/TF3 (4x337).
- for sub-test 4: DTCH/TF3 (8x337).
- for sub-test 5: DTCH/TF4 (12x337)
- for sub-test 6: DTCH/TF4 (16x337)
- for sub-test 7: DTCH/TF4 (20x337)
- for sub-test 8: DTCH/TF4 (24x337)
- for sub-test 9: DTCH/TF4 (8x337)
- for sub-test 10: DTCH/TF4 (20x337).

4. At step 15 the UE shall return

- for sub-test 1 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.4.2 Interactive or background / UL: 384(145 bit TBS ñ 20 ms TTI) DL: 2048 kbps (657 bit TBS ñ 10 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.2.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.4.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.4** for the downlink **10 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the Interactive/**Background 384 kbps UL PS RAB**, **SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an Interactive/**Background 384** kbps UL PS RAB.

On the **DL**

- **The DSCH** can carry combinations of the Interactive/**Background 2048 kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background **384 kbps** UL PS RAB channel has a **145 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.4.1.3 Method of test

Uplink TFS for the 384 kbps USCH ñ Transport Block Size 145 bits:

	TFI	DTCH	SHCCH (SRB#5)	DCCH (SRB#1 ñ SRB#4)
TFS	TF0, bits	0x145	0x169	0x149
	TF1, bits	1x145	1x169	1x149
	TF2, bits	3x145	N/A	N/A
	TF3, bits	7x145	N/A	N/A
	TF4, bits	10x145	N/A	N/A
	TF5, bits	20x145	N/A	N/A
	TF6, bits	30x145	N/A	N/A
	TF7, bits	40x145	N/A	N/A
	TF8, bits	60x145	N/A	N/A

Uplink TFCS for the 384 kbps USCH ñ Transport Block size 145 bits:

- See corresponding table in 18.2.3.4.1.2

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.2

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.2

Downlink TFS for 2048 kbps DSCH ñ 10 ms TTI:

- See corresponding table in 18.2.3.3.1.3

Downlink TFCS for 2048 kbps DSCH - 10 ms TTI

- See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test		Downlink TFCS Under Test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1		DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (128 x1) x5 - 8	DTCH: 632
2		DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (128x5) x2- 8	DTCH: 1272
3		DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2552 (128 x10) x2 - 8	DTCH: 2552
4		DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (128 x20) x2 - 8	DTCH: 5112
5		DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 7672 (128 x30) x2 - 8	DTCH: 7672
6		DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 10232 (128 x40) x2 - 8	DTCH:10232
7		DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 12792 (128 x50) x2 - 8	DTCH: 12792

8		DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 15352 (128 x60) x2 - 8	DTCH: 15352
9		DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (128 x20) x7 - 8	DTCH: 17912
10		DL_DSCH_TFC10	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC9, UL_USCH_TFC18, UL_USCH_TFC27	UL_USCH_TFC0, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 19192 (128 x50) x3 - 8	DTCH: 19192

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC9, UL_TFC18 and UL_TFC27 are part of the minimum set of TFCIs
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
The UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

18.2.3.4.1.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x145).
- for sub-test 2: DTCH/TF2 (5x145).
- for sub-test 3: DTCH/TF3 (10x145).
- for sub-test 4: DTCH/TF3 (20x145).
- for sub-test 5: DTCH/TF4 (30x145)
- for sub-test 6: DTCH/TF4 (40x145).
- for sub-test 7: DTCH/TF4 (50x145).
- for sub-test 8: DTCH/TF4 (60x145).
- for sub-test 9: DTCH/TF4 (20x145).
- for sub-test 10: DTCH/TF4 (50x145).

 4. At step 15 the UE shall return

- for sub-test 1 to 10: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.4.3 Interactive or background / UL: 384 (337 bit TBS ñ 20 ms TTI) DL: 2048 kbps (657 bit TBS ñ 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.3.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.4.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.4** for the downlink **20 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the Interactive/**Background 384 kbps UL PS RAB, SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an Interactive/**Background 384** kbps UL PS RAB.

On the **DL**

- **The DSCH** can carry combinations of the Interactive/**Background 2048 kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background **384 kbps** UL PS RAB channel has a **337 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.4.3.3 Method of test

Uplink TFS for the 384 kbps USCH ñ Transport Block Size 337 bits:

- See corresponding table in 18.2..3.3.3.2

Uplink TFCS for the 384 kbps USCH ñ Transport Block size 337 bits:

- See corresponding table in 18.2.3.3.3.2

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.2

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.2

Downlink TFS for 2048 kbps DSCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.3.1.3

Downlink TFCS for 2048 kbps DSCH ñ 20 ms TTI

- See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 10 ms TTI & UL TBS (337 bit) and DL TBS (337 bit):

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1		DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19, UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (320 x1) x2 - 8	DTCH: 632
2		DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20, UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (320 x2) x2 - 8	DTCH: 1272
3		DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2872 (320 x4) x2 - 8	DTCH: 2552
4		DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (320 x8) x2 - 8	DTCH: 5112
5		DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14, UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 7672 (320 x12) x2 - 8	DTCH: 7672
6		DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 10232 (320 x16) x2 - 8	DTCH: 10232

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
7		DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16, UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 12792 (320 x20) x2 - 8	DTCH: 12792
8		DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC8, UL_USCH_TFC9, UL_USCH_TFC17, UL_USCH_TFC18, UL_USCH_TFC26, UL_USCH_TFC27, UL_USCH_TFC35	DTCH: 15352 (320 x24) x2 - 8	DTCH: 15352
9		DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (320 x8) x7- 8	DTCH: 17912
10		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (320 x8) x8- 8	DTCH: 20472
11		DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 23032 (320 x4) x18 - 8	DTCH: 23032
12		DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 25592 (320 x16) x5 - 8	DTCH: 25592

Sub-test		Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
13		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 28152 (320 x8) x11 - 8	DTCH: 28152
14		DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 20472 (320 x24) x4 - 8	DTCH: 30712
15		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 33272 (320 x8) x13 - 8	DTCH: 33272
16		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (320 x4) x28 - 8	DTCH: 35832
17		DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 38392 (320 x8) x14 - 8	DTCH: 38392
18		DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 40952 (320 x24) x8- 8	DTCH: 40952
NOTE:		See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.					

18.2.3.4.3.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: DTCH/TF1 (1x337).
- for sub-test 2: DTCH/TF2 (2x337).
- for sub-test 3: DTCH/TF3 (4x337).
- for sub-test 4: DTCH/TF3 (8x337).
- for sub-test 5: DTCH/TF4 (12x337)
- for sub-test 6: DTCH/TF5 (16x337)
- for sub-test 7: DTCH/TF6 (20x337)
- for sub-test 8: DTCH/TF8 (24x337)
- for sub-test 9 to 13: DTCH/TF4 (8x337)
- for sub-test 11: DTCH/TF3 (4x337)
- for sub-test 12: DTCH/TF6 (16x337)
- for sub-test 13: DTCH/TF4 (8x337)
- for sub-test 14: DTCH/TF8 (24x337)
- for sub-test 15 to 17: DTCH/TF4 (8x337)
- for sub-test 18: DTCH/TF8 (24x337)

4. At step 15 the UE shall return

- for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.3.4.4 Interactive or background / UL: 384(145 bit TBS ñ 20 ms TTI) DL: 2048 kbps (657 bit TBS ñ 20 ms TTI) / PS RAB + UL: 3.4 DL: 16.8 kbps SRBs for DCCH, CCCH and BCCH + UL: 16.8 DL: 16 kbps SRBs for SHCCH

18.2.3.4.4.1 Conformance requirement

See 18.2.2.4.1.

18.2.3.4.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **two UL transport** channels (a **RACH** and a **USCH**) and **two DL transport** channels (**DSCH** and **FACH**) as specified in TS 34.108, clause **6.10.3.4.2.4** for the downlink **20 ms TTI case**.

On the **UL**

- **The USCH** channel can carry combinations of the Interactive/**Background 384 kbps UL PS RAB**, **SHCCH and the DCCH.**
- **The RACH** channel can carry combinations of the signalling Radio Bearer for **CCCH, DCCH, and SHCCH** *excluding or including* an Interactive/**Background 384** kbps UL PS RAB.

On the **DL**

- **The DSCH** can carry combinations of the Interactive/**Background 2048 kbps** PS RAB, the SHCCH and the DCCH. The Interactive/Background PS RAB on the DSCH has a 10 ms TTI. The Interactive/Background **384 kbps** UL PS RAB channel has a **145 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling Radio Bearer for CCCH, DCCH, SCCH, BCCH and *excluding or including* an **Interactive/Background 384 kbps** PS RAB.

To be able to test the **downlink** radio bearer on the DSCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.3.4.4.3 Method of test

Uplink TFS for the 384 kbps USCH ñ Transport Block Size 337 bits:

- See corresponding table in 18.2..3.3.3.2

Uplink TFCS for the 384 kbps USCH ñ Transport Block size 337 bits:

- See corresponding table in 18.2.3.3.3.2

Uplink TFS for the RACH without DTCH:

- See corresponding table in 18.2.3.1.1.2

Uplink TFS for the RACH with DTCH:

- See corresponding table in 18.2.3.1.1.2

Downlink TFS for 2048 kbps DSCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.3.1.3

Downlink TFCS for 2048 kbps DSCH ñ 20 ms TTI

- See corresponding table in 18.2.3.3.1.3

Downlink TFS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH without DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Downlink TFCS for FACH with DTCH ñ 20 ms TTI:

- See corresponding table in 18.2.3.1.1.3

Sub-test for RACH/FACH ñ 20 ms TT1:

- See Section 18.2.6.1

Sub-tests for DSCH/USCH ñ 10 ms TTI & UL 145 bit TBS and DL 337 bit TBS:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_DSCH_TFC1	UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC9, UL_USCH_TFC10, UL_USCH_TFC18, UL_USCH_TFC19 UL_USCH_TFC27, UL_USCH_TFC28	DTCH: 632 (128x1) x4 - 8	DTCH: 632
2	DL_DSCH_TFC2	UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC9, UL_USCH_TFC11, UL_USCH_TFC18, UL_USCH_TFC20 UL_USCH_TFC27, UL_USCH_TFC29	DTCH: 1272 (128x5) x2 - 8	DTCH: 1272
3	DL_DSCH_TFC3	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57 UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21 UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 2872 (128x10) x2 - 8	DTCH: 2552
4	DL_DSCH_TFC4	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 5112 (128x20) x2 - 8	DTCH: 5112
5	DL_DSCH_TFC5	UL_USCH_TFC5	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC9, UL_USCH_TFC14 UL_USCH_TFC18, UL_USCH_TFC23, UL_USCH_TFC27, UL_USCH_TFC32	DTCH: 7672 (128x30) x2 - 8	DTCH: 7672
6	DL_DSCH_TFC6	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 10232 (128x40) x2 - 8	DTCH: 10232

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
7	DL_DSCH_TFC7	UL_USCH_TFC7	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC7, UL_USCH_TFC9, UL_USCH_TFC16 UL_USCH_TFC18, UL_USCH_TFC25, UL_USCH_TFC27, UL_USCH_TFC34	DTCH: 12792 (128x50) x2 - 8	DTCH: 12792
8	DL_DSCH_TFC8	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC8, UL_USCH_TFC9, UL_USCH_TFC17, UL_USCH_TFC18, UL_USCH_TFC26, UL_USCH_TFC27, UL_USCH_TFC35	DTCH: 15352 (128x60) x2 - 8	DTCH: 15352
9	DL_DSCH_TFC9	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 17912 (128x20) x7- 8	DTCH: 17912
10	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 20472 (128x20) x8- 8	DTCH: 20472
11	DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC9, UL_USCH_TFC12, UL_USCH_TFC18, UL_USCH_TFC21, UL_USCH_TFC27, UL_USCH_TFC30	DTCH: 23032 (128x10) x18 - 8	DTCH: 23032
12	DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15, UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 25592 (128x40) x5 - 8	DTCH: 25592

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
13	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 28152 (128x20) x11 - 8	DTCH: 28152
14	DL_DSCH_TFC10	UL_USCH_TFC8	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC6, UL_USCH_TFC9, UL_USCH_TFC15 UL_USCH_TFC18, UL_USCH_TFC24, UL_USCH_TFC27, UL_USCH_TFC33	DTCH: 30712 (128x60) x4 - 8	DTCH: 30712
15	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 33272 (128x20) x13 - 8	DTCH: 33272
16	DL_DSCH_TFC10	UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 35832 (128x20) x14 - 8	DTCH: 35832
17	DL_DSCH_TFC10	UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 38392 (128x10) x30 - 8	DTCH: 38392
18	DL_DSCH_TFC10	UL_USCH_TFC6	DL_DSCH_TFC0, DL_DSCH_TFC19, DL_DSCH_TFC38, DL_DSCH_TFC57, UL_USCH_TFC0, UL_USCH_TFC5, UL_USCH_TFC10, UL_USCH_TFC15	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC9, UL_USCH_TFC13, UL_USCH_TFC18, UL_USCH_TFC22, UL_USCH_TFC27, UL_USCH_TFC31	DTCH: 40952 (128x40) x8- 8	DTCH: 40952

NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
DTCH: the UL RLC SDU size have been chosen such that the UE will return all data received in downlink and that the UL RLC SDU will fill up the uplink transport format set under test over one or several transmission time intervals.

18.2.3.4.3.4 Test requirements

See 18.1.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST.
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: DTCH/TF1 (1x128).
   - for sub-test 2: DTCH/TF2 (5x128).
   - for sub-test 3: DTCH/TF3 (10x128).
   - for sub-test 4: DTCH/TF4 (20x128).
   - for sub-test 5: DTCH/TF5 (30x128)
   - for sub-test 6: DTCH/TF6 (40x128)
   - for sub-test 7: DTCH/TF7 (50x128)
   - for sub-test 8: DTCH/TF8 (60x128)
   - for sub-test 9 to 13: DTCH/TF4 (20x128)
   - for sub-test 14: DTCH/TF8 (60x128)
   - for sub-test 15 to 16: DTCH/TF4 (8x128)
   - for sub-test 17: DTCH/TF3(10x128)
   - for sub-test 18: DTCH/TF6 (40x128)
4. At step 15 the UE shall return
   - for sub-test 1 to 18: an RLC SDU on DTCH having the same content as the DL RLC SDU sent by the SS.

18.2.4 ~~Void~~Combinations on PDSCH, SCCPCH, DPCH, PUSCH and PRACH

18.2.4.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 256 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 kbps (320 bit payload ñ 20 ms TTI) DL: 256 kbps (320 bit payload ñ 10 ms TTI) / PS RAB/ + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.1.1 Conformance requirement

See 18.2.2.4.1

18.2.4.1.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH, RACH**, and **DCH**) and **three DL transport** channels (**DSCH, FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.1**. Test is designed for the downlink shared channel (**DSCH**) **10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI**.
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the Interactive/**Background 256 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI**.
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH,** BCCH and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.1.1.3 Method of test

Uplink TFS for DCH:

	TFI	RAB Subflow#1 DTCH	RAB Subflow#2 DTCH	RAB Subflow#3 DTCH	SRB#1-SRB#4 DCCH
TFS	TF0, bits	0x81(alt. 1x0) (note)	0x103	0x60	0x148 (alt. 1x0) (note)
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Uplink TFCS for DCH:

TFCI	(Subflow#1, Subflow#2, Subflow#3, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1)
UL_TFC4	(TF1, TF0, TF0, TF1)
UL_TFC5	(TF2, TF1, TF1, TF1)
Note 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC_3 are part of the minimum set of TFCIs. Note 2: In case TB size zero is configured for any transport channel, the first TFC is required; it is optional otherwise.	

Uplink TFS for USCH ñ 320 bit payload& 20 ms TTI:

	TFI	RAB DTCH	SRB SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	3x337	N/A
	TF4, bits	4x337	N/A

Uplink TFCS for USCH ñ 320 bit payload& 20 ms TTI:

TFCI	(RAB, SHCCH)
UL_USCH_TFC0	(TF0, TF0)
UL_USCH_TFC1	(TF1, TF0)
UL_USCH_TFC2	(TF2, TF0)
UL_USCH_TFC3	(TF3, TF1)
UL_USCH_TFC4	(TF4, TF1)
UL_USCH_TFC5	(TF0, TF1)
UL_USCH_TFC6	(TF1, TF1)
UL_USCH_TFC7	(TF2, TF1)
UL_USCH_TFC8	(TF3, TF1)
UL_USCH_TFC9	(TF4, TF1)
Note: UL_USCH_TFC0, UL_USCH_TFC1 and UL_USCH_TFC5 are part of the minimum set of TCIs	

TFS for RACH:

	TFI	SRB#0 & SRB#5 CCCH, SHCCH
TFS	TF0, bits	1x170

Downlink TFS for DCH:

		RAB subflow #1 DTCH	RAB subflow #2 DTCH	RAB subflow #3 DTCH	SRB#1-SRB#4 DCCH
TFS	TF0, bits	0x81 (alt. 1x0) (note)	0x103	0x60	0x148 (alt. 1x0) (note)
	TF1, bits	1x39	1x103	1x60	1x148
	TF2, bits	1x81	N/A	N/A	N/A

Downlink TFCS for DCH:

TFCI	DTCH(RAB Subflow#1 ñ RAB subflow#3), DCCH
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1)
DL_TFC4	(TF1, TF0, TF0, TF1)
DL_TFC5	(TF2, TF1, TF1, TF1)

Downlink TFS for DSCH ñ 320 bit payload& 10 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A

Downlink TFCS for DSCH ñ 320 bit payload& 10 ms TTI:

TFCI	256 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0)
DL_DSCH_TFC1	(TF1, TF0)
DL_DSCH_TFC2	(TF2, TF0)
DL_DSCH_TFC3	(TF3, TF0)
DL_DSCH_TFC4	(TF4, TF0)
DL_DSCH_TFC5	(TF0, TF1)
DL_DSCH_TFC6	(TF1, TF1)
DL_DSCH_TFC7	(TF2, TF1)
DL_DSCH_TFC8	(TF3, TF1)
DL_DSCH_TFC9	(TF4, TF1)

Downlink TFS for FACH ñ 32 kbps:

		CCCH/SHCCH/BCCH
TFS	TF0, bits	0x171
	TF1, bits	1x171
	TF2, bits	2x171
	TF3, bits	3x171(alt. N/A)
	TF4, bits	4x171(alt. N/A)

Downlink TFCS for FACHñ 32 kbps:

TFCI	CCCH/SHCCH/BCCH
DL_FACH_TFC0	(TF0)
DL_FACH_TFC1	(TF1)
DL_FACH_TFC2	(TF2)
DL_FACH_TFC3	(TF3)
DL_FACH_TFC4	(TF4)
	ALT
DL_FACH_TFC0	(TF0,)
DL_FACH_TFC1	(TF1)
DL_FACH_TFC2	(TF2)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

See 18.2.1.3 for test procedure.

18.2.4.1.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be:

- for sub-test 1: Subflow#1/TF1 (1x39).
- for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
- for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)

- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x337)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
- **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)**
- **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)**
- **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)**
- **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**

4. At step 15 the UE shall return

- **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
- **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
- **for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**
- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

18.2.4.1.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB
+ UL: 3.4 DL: 3.4 kbps SRBs for DCCH
+ Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload ñ 10 ms TTI) / PS RAB
+ UL: 16.8 kbps SRBs for CCCH and SHCCH
+ DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.2.1 Conformance requirement

See 18.2.2.4.1

18.2.4.1.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH , RACH** , and **DCH**) and **three DL transport** channels (**DSCH , FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.1**. Test is designed for the downlink shared channel **(DSCH) 10 ms TTI case and 145 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the Interactive/**Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI**.
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the Interactive/**Background 256 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI**. (TBS).
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH,** BCCH and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.1.2.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH ñ 145 bit payload & 20 ms TTI:

	TFI	RAB DTCH	SRB SHCCH
TFS	TF0, bits	0x145	0x169
	TF1, bits	1x145	1x169
	TF2, bits	3x145	N/A
	TF3, bits	7x145	N/A
	TF4, bits	10x145	N/A

Uplink TFCS for USCH ñ 145 bit payload & 20 ms TTI:

See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 320 bit payload& 10 ms TTI:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DSCH ñ 320 bit payload& 10 ms TTI:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC5, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.1.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)

- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF1(1x145)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2(3x145)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60);Subflow#4/TF2(3x145)
- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3(7x145)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF3(7x145)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4(10x145)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF4(10x145)

4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
- for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as the RLC SDU sent by SS
- **for sub-test 3: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 312 bits equal to the content as sent by SS**
- **for sub-test 4: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 312 bits equal to the content as sent by SS**
- **for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 632 bits equal to the content as sent by SS**
- for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 632 bits equal to the content as sent by SS
- **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**
- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
- **for sub-test 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as the RLC SDU as sent by SS**

18.2.4.1.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload ñ 20 ms TTI) DL: 256 kbps (320 bit payload ñ 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.3.1 Conformance requirement

See 18.2.2.4.1

18.2.4.1.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH , RACH ,** and **DCH**) and **three DL transport** channels (**DSCH , FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.1**. Test is designed for the downlink shared channel (**DSCH**) 20 **ms TTI case and 320 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the Interactive/**Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI**.
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the Interactive/**Background 256 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI**.
- The FACH can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH, BCCH** and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.1.3.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH - 320 bit payload& 20 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF5, bits	12x337	N/A
	TF6, bits	16x337	N/A

Downlink TFCS for DSCH ñ 320 bit payload& 20 ms TTI:

TFCI	**256 kbps RAB DTCH & SHCCH**
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0),
DL_DSCH_TFC7	(TF0, TF1),
DL_DSCH_TFC8	(TF1, TF1),
DL_DSCH_TFC9	(TF2, TF1),
DL_DSCH_TFC10	(TF3, TF1),
DL_DSCH_TFC11	(TF4, TF1),
DL_DSCH_TFC12	(TF5, TF1),
DL_DSCH_TFC13	(TF6, TF1)

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) -8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) -8

13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4 x 320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) -8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4 x 320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) -8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.1.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: Subflow#1/TF1 (1x39).
- for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
- for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)

- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1(1x60); Subflow#4/TF4 (4x337)
- for sub-test 13: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- for sub-test 14: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)

4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
- for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
- for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
- for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
- for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
- for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.2.4.1.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 256 kbps (320 bit payload ñ 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.1.4.1 Conformance requirement

See 18.2.2.4.1

18.2.4.1.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH , RACH ,** and **DCH**) and **three DL transport** channels (**DSCH , FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.1**. Test is designed for the downlink shared channel **(DSCH) 20 ms TTI case and 145 bit payload for the Interactive/Background PS RAB.**

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.**

- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 256 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI**. (TBS).
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH, BCCH** and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.1.4.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH ñ 145 bit payload & 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH ñ 145 bit payload & 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.3.3

Downlink TFCS for DSCH - 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.3.3

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (128 x 1)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (128 x 3)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) - 8

13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC7, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.1.4.4 Test requirements

See **18.2.1.3** for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: Subflow#1/TF1 (1x39).
- for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
- for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2(2x337)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x145)
- for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x337)
- for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)
- for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
- for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)

- for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (10x145)
- for sub-test 13: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
- for sub-test 14: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (10x145)

4. At step 15 the UE shall return

- for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.
- for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS
- for sub-test 3, 5, and 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS
- for sub-test 4, 6, and 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS
- for sub-test 7,9,11,13: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS
- for sub-test 8,10,12,14: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS

18.2.4.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 384 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (320 bit payload ñ 20 ms TTI) DL: 384 kbps (320 bit payload ñ 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.1.1 Conformance requirement

See 18.2.2.4.1

18.2.4.2.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH, RACH**, and **DCH**) and **three DL transport** channels (**DSCH , FACH, and DCH**) as specified in TS 34.108, clause 6.10.3.4.3.2. Test is designed for the downlink shared channel **(DSCH) 10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI**.
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 256 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 256 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI**.
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH, BCCH** and **SCCH.**
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.2.1.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 320 bit payload& 10 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF4, bits	12x337	N/A

Downlink TFCS for DSCH ñ 320 bit payload& 10 ms TTI:

TFCI	384 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF0, TF1),
DL_DSCH_TFC7	(TF1, TF1),
DL_DSCH_TFC8	(TF2, TF1),
DL_DSCH_TFC9	(TF3, TF1),
DL_DSCH_TFC10	(TF4, TF1),
DL_DSCH_TFC11	(TF5, TF1)

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x320) x 2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:3832 (12x320)-8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.2.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)**
   - **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)**
   - **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)**
   - **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - **for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**

4. **At step 15 the UE shall return**
   - **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
   - **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
   - **for sub-test 3, 5, 9 and 11: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
   - **for sub-test 4, 6, 10 and 12: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS**
   - **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

18.2.4.2.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB
+ UL: 3.4 DL: 3.4 kbps SRBs for DCCH
+ Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload ñ 10 ms TTI) / PS RAB
+ UL: 16.8 kbps SRBs for CCCH and SHCCH
+ DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.2.1 Conformance requirement

See 18.2.2.4.1

18.2.4.2.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH , RACH** , and **DCH**) and **three DL transport** channels (**DSCH, FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.2**. Test is designed for the downlink shared channel **(DSCH) 10 ms TTI case and 320 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI**.
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 256 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 10 ms TTI**. (TBS).
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH, BCCH**, and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.2.2.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH ñ 145 bit payload & 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH ñ 145 bit payload & 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 10 ms TTI:

- See comparable table in 18.2.4.2.1.3

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#4:376 (1x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (4x320) - 8
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320)-8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs.
NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.

See 18.2.1.3 for test procedure.

18.2.4.2.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x128)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x128)
   - **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x128)**
   - **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x128)**
   - **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)**
   - **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)**
   - for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
   - **for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)**
4. **At step 15 the UE shall return**
   - **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
   - **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
   - **for sub-test 3: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 312 bits equal to content sent by SS**
   - **for sub-test 4: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 312 bits equal to content sent by SS**
   - **for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 632 bits equal to content sent by SS**

- **for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 632 bits equal to content sent by SS**

- **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

- **for sub-test 9: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same contents equal to content sent by SS**

- **for sub-test 10: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same contents equal to content sent by SS**

18.2.4.2.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload ñ 20 ms TTI) DL: 384 kbps (320 bit payload ñ 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.3.1 Conformance requirement

See 18.2.2.4.1

18.2.4.2.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH , RACH** , and **DCH**) and **three DL transport** channels (**DSCH, FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.2**. Test is designed for the downlink shared channel (**DSCH**) **20 ms TTI case and 320 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI**.

- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.

- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The DSCH can carry combinations of the **Interactive/Background 384 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI**.

- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH, BCCH** and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.2.3.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH - 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH - 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH - 320 bit payload& 20 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x337	0x169
	TF1, bits	1x337	1x169
	TF2, bits	2x337	N/A
	TF3, bits	4x337	N/A
	TF4, bits	8x337	N/A
	TF5, bits	12x337	N/A
	TF6, bits	16x337	N/A
	TF7, bits	20x337	N/A
	TF8, bits	24x337	N/A

Downlink TFCS for DSCH ñ - 320 bit payload & 20 ms TTI:

TFCI	**384 kbps RAB DTCH & SHCCH**
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0),
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF0, TF1),
DL_DSCH_TFC10	(TF1, TF1),
DL_DSCH_TFC11	(TF2, TF1),
DL_DSCH_TFC12	(TF3, TF1),
DL_DSCH_TFC13	(TF4, TF1),
DL_DSCH_TFC14	(TF5, TF1),
DL_DSCH_TFC15	(TF6, TF1),
DL_DSCH_TFC16	(TF7, TF1),
DL_DSCH_TFC17	(TF8, TF1)

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0 DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1912 (3x320)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (4x320) - 8
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1912	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x320)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (4x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320) - 8

13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8
15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (4x320)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:6392 (20x320) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (4x320)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (20x320) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (24x320) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (24x320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.2.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)**
   - **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)**
   - **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)**
   - **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**
   - for sub-test 1,13,15,and 17: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
   - **for sub-test 12,14,16,18: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**
4. **At step 15 the UE shall return**
   - **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
   - **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
   - **for sub-test 3, 5, 9 and 11: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
   - **for sub-test 4, 6, 10 and 12: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS**
   - **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

- **for sub-test 9,11,13,15 and 17: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

- **for sub-test 8,10,12,14,16 and 18: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

18.2.4.2.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 384 kbps (320 bit payload ñ 20 ms TTI)/ PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.2.4.1 Conformance requirement

See 18.2.2.4.1

18.2.4.2.4.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH , RACH ,** and **DCH**) and **three DL transport** channels (**DSCH, FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.2**. Test is designed for the downlink shared channel (**DSCH**) **20 ms TTI case and 320 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI.**

- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.

- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH.**

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 384 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 384 kbps PS RAB on the DSCH has a 320 bit payload and 20 ms TTI**. (TBS).

- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH,** BCCH and **SCCH**.

- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.2.4.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.2.3.1

Downlink TFCS for DSCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.2.3.1

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:312 (1x320) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:376 (1x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (2x320) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:760 (3x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (4x320) - 8
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1784 (7x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC6, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (8x320) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (10x128)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:3832 (12x320) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (10x128)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:3832 (12x320)-8

13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (16x320) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (16x320) - 8
15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (10x128)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:6392 (20x320) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (10x128) 6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:6392 (20x320) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x7 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (24x320)-8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC9, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x7 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (24x320) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: UL_USCH_TFC0 UL_USCH_TFC1 and UL_USCH_TFC5 are part o f the minimum TFCIs NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.2.4.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x145)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x128)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x128)
   - **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x128)**
   - **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x128)**
   - **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)**
   - **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)**
   - for sub-test 11,13,15, and 17: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x128)
   - **for sub-test 12,14,16, and 18: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x128)**

4. **At step 15 the UE shall return**
   - **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
   - **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
   - **for sub-test 3, 5, 9 and 1,13, 15 and 17: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
   - **for sub-test 4, 6, 10,12, 14 16 and 18: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS**
   - **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**

18.2.4.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 DL: 2048 kbps / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.1 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload ñ 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.1.1 Conformance requirement

See 18.2.2.4.1

18.2.4.3.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH, RACH**, and **DCH**) and **three DL transport** channels (**DSCH, FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.3**. Test is designed for the downlink shared channel **(DSCH) 10 ms TTI case and 640 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 320 bit payload and 20 ms TTI**.
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 2048 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 10 ms TTI**.
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH, BCCH** and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.3.1.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH ñ 320 bit payload& 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 640 bit payload & 10 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x657	0x169
	TF1, bits	1x657	1x169
	TF2, bits	2x657	N/A
	TF3, bits	4x657	N/A
	TF4, bits	8x657	N/A
	TF5, bits	12x657	N/A
	TF6, bits	16x657	N/A
	TF7, bits	20x657	N/A
	TF8, bits	24x657	N/A
	TF9, bits	28x657	N/A
	TF10,bits	30x657	N/A

Downlink TFCS for DSCH ñ 640 bit payload & 10 ms TTI:

TFCI	2048 kbps RAB DTCH & SHCCH
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0)
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF9, TF0),
DL_DSCH_TFC10	(TF10, TF0),
DL_DSCH_TFC11	(TF0, TF1),
DL_DSCH_TFC12	(TF1, TF1),
DL_DSCH_TFC13	(TF2, TF1),
DL_DSCH_TFC14	(TF3, TF1),
DL_DSCH_TFC15	(TF4, TF1),
DL_DSCH_TFC16	(TF5, TF1),
DL_DSCH_TFC17	(TF6, TF1),
DL_DSCH_TFC18	(TF7, TF1),
DL_DSCH_TFC19	(TF8, TF1),
DL_DSCH_TFC20	(TF9, TF1)

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:2552 (4x640) - 8
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8

13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8
15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8

19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (4x320)x15 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:19192 (30x640) - 8
22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (4x320)x15 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:19192 (30x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.3.1.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)

- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
- **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)**
- **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)**
- **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)**
- **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- **for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**
- for sub-test 13,15,17,19,21: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- **for sub-test 14,16,18,20,22: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**

4. At step 15 the UE shall return

- **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
- **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
- **for sub-test 3, 5, 9,11,13,15,17,19 and 21: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 4, 6, 10, 12, 14, 16,18, 20, 22: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS**
- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS**

18.2.4.3.2 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64 (128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 10 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.2.1 Conformance requirement

See 18.2.2.4.1

18.2.4.3.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH , RACH ,** and **DCH**) and **three DL transport** channels (**DSCH, FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.3**. Test is designed for the downlink shared channel (**DSCH**) **10 ms TTI case and 640 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI**.
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 2048 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 10 ms TTI**. (TBS).
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH, BCCH** and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.3.2.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH - 145 bit payload & 20 ms TTI:

- See comparable table in 18.2.4.1.2.3

Uplink TFCS for USCH ñ 145 bit payload & 20 ms TTI:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 10 ms TTI:

- See comparable table in 18.2.4.3.1.3

Downlink TFCS for DSCH ñ 10 ms TTI:

- See comparable table in 18.2.4.3.1.3

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0 UL_USCH_TFC1 UL_USCH_TFC5 UL_USCH_TFC6 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3 UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8

7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7)x3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8
8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7)x3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (128x10)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (128x10)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (128x10)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 128(x10)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8

13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10232 (128x10)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#3:No data Subflow#4:10232 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4: 10232 (128x10)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10232 (16x640) - 8
15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (128x10)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (128x10)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (128x10)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (128x10)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8

19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (128x10)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (128x10)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9 UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (128x10)x15 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:19192 (30x640) - 8
22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:19192 (128x10)x15 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:19192 (30x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.3.2.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x145)

- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x145)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (3x145)
- **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x145)**
- **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)**
- **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)**
- **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)**
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
- **for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)**
- for sub-test 13,15,17,19,21: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
- **for sub-test 14,16,18,20,22: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)**

4. At step 15 the UE shall return

- **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
- **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
- **for sub-test 3, 9,11,13,15,17,19 and 21: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 4, 10, 12, 14, 16,18, 20, 22: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**
- **for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**
- **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS**
- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS**

18.2.4.3.3 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(320 bit payload ñ 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.3.1 Conformance requirement

See 18.2.2.4.1

18.2.4.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH, RACH**, and **DCH**) and **three DL transport** channels (**DSCH, FACH, and DCH**) as specified in TS 34.108, clause **6.10.3.4.3.3**. Test is designed for the downlink shared channel **(DSCH) 20 ms TTI case and 640 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps** UL PS RAB channel has a **337 bit** Transport Block Size (TBS).
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH.**

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 2048 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background PS RAB on the DSCH has a 20 ms TTI**. The **Interactive/Background 2048 kbps** DL PS RAB channel has a **657 bit** Transport Block Size (TBS).
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH, BCCH** and **SCCH.**
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.3.3.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 20 ms TTI:

		DTCH RAB Subflow#4	SHCCH
TFS	TF0, bits	0x657	0x169
	TF1, bits	1x657	1x169
	TF2, bits	2x657	N/A
	TF3, bits	4x657	N/A
	TF4, bits	8x657	N/A
	TF5, bits	12x657	N/A
	TF6, bits	16x657	N/A
	TF7, bits	20x657	N/A
	TF8, bits	24x657	N/A
	TF9, bits	28x657	N/A
	TF10,bits	32x657	N/A
	TF11,bits	36x657	N/A
	TF12,bits	40x657	N/A
	TF13,bits	44x657	N/A
	TF14,bits	48x657	N/A
	TF15,bits	52x657	N/A
	TF16,bits	56x657	N/A
	TF17,bits	60x657	N/A
	TF17,bits	64x657	N/A

Downlink TFCS for DSCH ñ20 ms TTI:

TFCI	**2048 kbps RAB DTCH & SHCCH**
DL_DSCH_TFC0	(TF0, TF0),
DL_DSCH_TFC1	(TF1, TF0),
DL_DSCH_TFC2	(TF2, TF0),
DL_DSCH_TFC3	(TF3, TF0),
DL_DSCH_TFC4	(TF4, TF0),
DL_DSCH_TFC5	(TF5, TF0),
DL_DSCH_TFC6	(TF6, TF0)
DL_DSCH_TFC7	(TF7, TF0),
DL_DSCH_TFC8	(TF8, TF0),
DL_DSCH_TFC9	(TF9, TF0),
DL_DSCH_TFC10	(TF10, TF0),
DL_DSCH_TFC11	(TF11, TF0),
DL_DSCH_TFC12	(TF12, TF0),
DL_DSCH_TFC13	(TF13, TF0),
DL_DSCH_TFC14	(TF14, TF0),
DL_DSCH_TFC15	(TF15, TF0),
DL_DSCH_TFC16	(TF16, TF0),
DL_DSCH_TFC17	(TF17, TF0),
DL_DSCH_TFC18	(TF18, TF0),
DL_DSCH_TFC19	(TF0, TF1),
DL_DSCH_TFC20	(TF1, TF1),
DL_DSCH_TFC21	(TF2, TF1),
DL_DSCH_TFC22	(TF3, TF1),
DL_DSCH_TFC23	(TF4, TF1),
DL_DSCH_TFC24	(TF5, TF1),
DL_DSCH_TFC25	(TF6, TF1),
DL_DSCH_TFC26	(TF7, TF1),
DL_DSCH_TFC27	(TF8, TF1),
DL_DSCH_TFC28	(TF9, TF1)
DL_DSCH_TFC29	(TF10, TF1),
DL_DSCH_TFC30	(TF11, TF1),
DL_DSCH_TFC31	(TF12, TF1),
DL_DSCH_TFC32	(TF13, TF1),
DL_DSCH_TFC33	(TF14, TF1),
DL_DSCH_TFC34	(TF15, TF1),
DL_DSCH_TFC35	(TF16, TF1),
DL_DSCH_TFC36	(TF17, TF1),
DL_DSCH_TFC37	(TF17, TF1),

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5 DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:312	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (320x1)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (320x2)x2 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3,	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320) x 3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2872 (3x320) x 3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320) x 4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (4x320) x 4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (4x320)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (4x320)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (4x320)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (4x320)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (4x320)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (4x320)x16 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:20472 (32x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (4x320)x16 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (32x640) - 8
23	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 23032 (4x320)x18 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:23032 (36x640) - 8
24	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 23032 (4x320)x18 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (36x640) - 8
25	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (4x320)x20 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:25592 (40x640) - 8
26	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (4x320)x20 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (40x640) - 8
27	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 28152 (4x320)x22 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:28152 (44x640) - 8
28	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:28152 (4x320)x22 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:28152 (44x640) - 8

29	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (4x320)x24 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:30712 (48x640) - 8
30	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (4x320)x24 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:30712 (48x640) - 8
31	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (4x320)x26 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:33272 (52x640) - 8
32	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (4x320)x26 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:33272 (52x640) - 8
33	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (4x320)x28 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:35832 (56x640) - 8
34	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (4x320)x28 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:35832 (56x640) - 8
35	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (4x320)x30 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:38392 (60x640) - 8

36	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (4x320)x30 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:38392 (60x640) - 8
37	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (4x320)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
38	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (4x320)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.3.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: Subflow#1/TF1 (1x39).
   - for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
   - for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1 (1x337)
   - for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1 (1x337)
   - for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (2x337)
   - for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2 (2x337)
   - **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (3x337)**
   - **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (3x337)**

- **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)**
- **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- **for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**
- for sub-test 13,15,17,19,21,23,25,27,29,31,33,35, and 37: Subflow#1/TF1 (1x39); Subflow#4/TF4 (4x337)
- **for sub-test 14,16,18,20,22,24,26,28,30,32,34,36,and 38: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (4x337)**

4. At step 15 the UE shall return

- **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
- **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
- **for sub-test 3, 5, 9,11,13,15,17,19,21,23,25,27,29,31,33,35, and 37: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 4, 6, 10, 12, 14, 16,18, 20, 22,24,26,28,30,32,34,36, and 38: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS**
- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS**

18.2.4.3.4 Conversational / speech / UL: 12.2 DL: 12.2 kbps / CS RAB + UL: 3.4 DL: 3.4 kbps SRBs for DCCH + Interactive or background / UL: 64(128 bit payload - 20 ms TTI) DL: 2048 kbps (640 bit payload - 20 ms TTI) / PS RAB + UL: 16.8 kbps SRBs for CCCH and SHCCH + DL: 33.6 kbps SRBs for CCCH SHCCH and BCCH

18.2.4.3.3.1 Conformance requirement

See 18.2.2.4.1

18.2.4.3.3.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration for **three UL transport** channels (**USCH , RACH** , and **DCH**) and **three DL transport** channels (**DSCH, FACH, and**

DCH) as specified in TS 34.108, clause **6.10.3.4.3.3**. Test is designed for the downlink shared channel **(DSCH) 20 ms TTI case and 640 bit payload for the Interactive/Background PS RAB**.

On the **UL**

- The **USCH** channel can carry combinations of the **Interactive/Background 64 kbps UL PS RAB** and 16.8 kbps **SHCCH.** The **Interactive/Background 64 kbps PS RAB on the USCH has a 145 bit payload and 20 ms TTI**.
- The **RACH** channel can carry combinations of the 16.8 kbps signalling Radio Bearers for **CCCH and SHCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**.

On the **DL**

- The **DSCH** can carry combinations of the **Interactive/Background 2048 kbps** PS RAB and the 16.8 kbps SHCCH. The **Interactive/Background PS RAB on the DSCH has a 20 ms TTI**. The **Interactive/Background 2048 kbps PS RAB on the DSCH has a 640 bit payload and 20 ms TTI**. (TBS).
- The **FACH** can carry combinations of the signalling 33.6 kbps Radio Bearer for **CCCH,** BCCH and **SCCH**.
- The **DCH** channel can carry combinations of the **12.2 kbps Conversational/Speech/CS** and the **3.4 kbps DCCH**

To be able to test the **downlink** radio bearer on the DSCH and the DCH, the UE loopback function is used on the **uplink** radio bearer on the USCH.

18.2.4.3.3.3 Method of test

Uplink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFS for USCH:

- See comparable table in 18.2.4.1.1.3

Uplink TFCS for USCH:

- See comparable table in 18.2.4.1.1.3

TFS for RACH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for DCH:

- See comparable table in 18.2.4.1.1.3

Downlink TFS for DSCH ñ 640 bit payload & 20 ms TTI:

- See comparable table in 18.2.4.3.3.3

Downlink TFCS for DSCH ñ 640 bit payload & 20 ms TTI:

- See comparable table in 18.2.4.3.3.3

Downlink TFS for FACH ñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Downlink TFCS for FACHñ 32 kbps:

- See comparable table in 18.2.4.1.1.3

Sub-tests ñ USCH:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitly tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:No data
2	DL_TFC2	UL_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:128	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:No data
3	DL_TFC1, DL_DSCH_TFC1	UL_TFC1, UL_USCH_TFC1	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:632 (1x640) - 8
4	DL_TFC2, DL_DSCH_TFC1	UL_TFC2, UL_USCH_TFC1	DL_DSCH_TFC0 DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC5, UL_USCH_TFC6, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (128x1)x5 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:632 (1x640) - 8
5	DL_TFC1, DL_DSCH_TFC2	UL_TFC1, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:1272 (2x640) - 8
6	DL_TFC2, DL_DSCH_TFC2	UL_TFC2, UL_USCH_TFC2	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC2, UL_USCH_TFC5, UL_USCH_TFC7, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1528 (128x3)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:1272 (2x640) - 8
7	DL_TFC1, DL_DSCH_TFC3	UL_TFC1, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7) x 3 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:2552 (4x640) - 8

8	DL_TFC2, DL_DSCH_TFC3	UL_TFC2, UL_USCH_TFC3	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC3, UL_USCH_TFC5, UL_USCH_TFC8, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2680 (128x7) x 3 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:2552 (4x640) - 8
9	DL_TFC1, DL_DSCH_TFC4	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:5112 (8x640) - 8
10	DL_TFC2, DL_DSCH_TFC4	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (10x128)x4 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:5112 (8x640) - 8
11	DL_TFC1, DL_DSCH_TFC5	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x6 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:7672 (12x640) - 8
12	DL_TFC2, DL_DSCH_TFC5	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (10x128)x6 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:7672 (12x640) - 8
13	DL_TFC1, DL_DSCH_TFC6	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (10x128)x8 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:10228 (16x640) - 8
14	DL_TFC2, DL_DSCH_TFC6	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:10228 (10x128)x8 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:10228 (16x640) - 8

15	DL_TFC1, DL_DSCH_TFC7	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (10x1280)x10 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:12792 (20x640) - 8
16	DL_TFC2, DL_DSCH_TFC7	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:12792 (10x128)x10 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:12792 (20x640) - 8
17	DL_TFC1, DL_DSCH_TFC8	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (10x128)x12 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:15352 (24x640) - 8
18	DL_TFC2, DL_DSCH_TFC8	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:15352 (10x128)x12 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:15352 (24x640) - 8
19	DL_TFC1, DL_DSCH_TFC9	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (10x128)x14 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:17912 (28x640) - 8
20	DL_TFC2, DL_DSCH_TFC9	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:17912 (10x128)x14 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:17912 (28x640) - 8
21	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 20472 (10x128)x16 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:20472 (32x640) - 8

22	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (10x128)x16 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:20472 (32x640) - 8
23	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (10x128)x18 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:23032 (36x640) - 8
24	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (10x128)x18 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:23032 (36x640) - 8
25	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (10x128)x20 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:25592 (40x640) - 8
26	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subfl#4: 25592 (10x128)x20 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:25592 (40x640) - 8
27	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subfl#4: 28152 (10x128)x22 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:28152 (44x640) - 8
28	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:28152 (10x128)x22 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:28152 (44x640) - 8

29	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (10x128)x24 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:30712 (48x640) - 8
30	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:30712 (10x128)x24 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:30712 (48x640) - 8
31	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (10x128)x26 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:33272 (52x640) - 8
32	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:33272 (10x128)x26 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:33272 (52x640) - 8
33	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (10x128)x28 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:35832 (56x640) - 8
34	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:35832 (10x128)x28 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:35832 (56x640) - 8
35	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (10x128)x30 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:38392 (60x640) - 8

36	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:38392 (10x128)x30 - 8	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflow#4:38392 (60x640) - 8
37	DL_TFC1, DL_DSCH_TFC10	UL_TFC1, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4	Subflow#1:39 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (10x128)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
38	DL_TFC2, DL_DSCH_TFC10	UL_TFC2, UL_USCH_TFC4	DL_DSCH_TFC0, DL_DSCH_TFC11, UL_USCH_TFC0, UL_USCH_TFC5, DL_TFC0, DL_TFC3, UL_TFC0, UL_TFC3	UL_USCH_TFC0, UL_USCH_TFC1, UL_USCH_TFC4, UL_USCH_TFC5, UL_USCH_TFC9, UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5	Subflow#1:81 Subflow#2:103 Subflow#3:60 Subflw#4:40952 (10x128)x32 - 8	Subflow#1:39 Subflow#2:No data Subflow#1:No data Subflow#4:40952 (64x640) - 8
NOTE 1:UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC3 are part of minimum set of TFCIs. NOTE 2:See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See 18.2.1.3 for test procedure.

18.2.4.3.3.4 Test requirements

See 18.2.1.3 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step A10i or B10b the UE shall send PUSCH CAPACITY REQUEST
3. At step 15 the UE transmitted transport format shall be

- for sub-test 1: Subflow#1/TF1 (1x39).
- for sub-test 2: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60)
- for sub-test 3: Subflow#1/TF1 (1x39); Subflow#4/TF1(1x145)
- for sub-test 4: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF1(1x145)
- for sub-test 5: Subflow#1/TF1 (1x39); Subflow#4/TF2 (3x145)
- for sub-test 6: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF2(3x145)
- **for sub-test 7: Subflow#1/TF1 (1x39); Subflow#4/TF3 (7x145)**
- **for sub-test 8: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF3 (7x145)**

- **for sub-test 9: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)**
- **for sub-test 10: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)**
- for sub-test 11: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
- **for sub-test 12: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)**
- for sub-test 13,15,17,19,21,23,2,5,27,29,31,33,35 and 37: Subflow#1/TF1 (1x39); Subflow#4/TF4 (10x145)
- **for sub-test 14,16,18,20,22,24,26,28,30,32,34,36 and 38: Subflow#1/TF2 (1x81); Subflow#2/TF1 (1x103); and Subflow#3/TF1 (1x60); Subflow#4/TF4 (10x145)**

4. At step 15 the UE shall return

- **for sub-test 1: an RLC SDU on Subflow#1 having the same content as sent by SS; and no data shall be received on Subflow#2 or Subflow#3.**
- **for sub-test 2: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS**
- **for sub-test 3, 9,11,13,15,17,19,21,23,25,27,29,31,33,35 and 37: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 4, 10, 12, 14, 16,18, 20, 22,24,26,28,30,32,34,36 and 38: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the same content as sent by SS**
- **for sub-test 5: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**
- **for sub-test 6: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 1272 bits equal to the content as sent by SS**
- **for sub-test 7: an RLC SDU on Subflow#1 having the same content as sent by SS; no data shall be received on Subflow#2 or Subflow#3; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS**
- **for sub-test 8: an RLC SDU on each of Subflow#1, Subflow#2 and Subflow#3 having the same content as sent by SS; and an RLC SDU on Subflow#4 having the first 2552 bits equal to the content as sent by SS**

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Malta, 1st ñ 5th Nov. 2004

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CHANGE REQUEST

⌘ **TS34.123-1** **CR** 972 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Add generic test procedure for tests Shared Channels
Source:	⌘	InterDigital Communications Corp.
Work item code:	⌘	TDD
Date:	⌘	20/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Add section for generic test procedure for Shared Channels
Summary of change:	⌘	Add section 18.2.1.3
Consequences if not approved:	⌘	If changes are not approved, UE in TDD Shared Channels will not be tested.

Clauses affected:	⌘	18.2.3 and 18.2.4

	Y	N		
Other specs affected:	⌘		X	Other core specifications ⌘
			X	Test specifications
			X	O&M Specifications

Other comments:	⌘	Affects Rel-4 and Rel-5 test cases.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

18.2.1.3 Generic test procedure for testing Single Speech Radio Bearers on USCH/DSCH channels and multiple radio configuration signalling on RACH/FACH

This procedure is used to test single speech only PS radio bearer on DSCH and USCH and multiple configuration signal bearers on RACH/FACH

Initial conditions

UE in idle mode

Test procedure

a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test.

b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 1.

d) The SS transmits test data on all radio bearers under test. The number of RLC SDUs to transmit every TTI and the size "Test data size" is specified for each sub-test of the actual radio bearer test. See note 2.

e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format.

f) The SS opens the UE test loop.

g) SS uses the RRC transport format combination control procedure. And now restricts the TFCs for the data on CS RAB and the data on PS RAB and also on SRB.

h) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.

i) SS transmit data on the CS RAB a MEASUREMENT CONTROL message requesting periodic reporting with a period of T2.

j) SS transmits the data on PS RAB.

k) SS waits the time equal to 2 times T2

l) SS checks that, for all radio bearers under test, the content of the received RLC SDUs have the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loop back of RLC SDUs.

m) The SS opens the UE test loop.

n) (Void)

o) Steps b) to m) are repeated for all sub-tests

p) The SS may optionally release the radio bearer.

q) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. Selection of UL RLC SDU size for the different radio bearers under test should be such that the UE returns data in sub-sequent TTIs without causing the UE transmission buffer to become full. To achieve this the UL RLC SDU size shall be set to UL TF payload size under test, minus the size of length indicator and expansion bit, and divided by the ratio between downlink and uplink TTI. E.g. for a AM radio bearer having the uplink RLC payload size equal to 320, the downlink TTI equal to 10 ms, and the uplink TTI equal to 20 ms, then for the transport format 4x336 (TF payload size = 4x320=1280 bits) the UL RLC SDU size parameter should be set to 632 bits (=1280bits/(20ms/10ms)- 8 bits).

NOTE 2: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transparent mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transparent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

NOTE 3: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signalling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

Expected sequence

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	-->		SERVICE REQUEST (DCCH)	GMM
6b	<--		SECURITY MODE COMMAND	RRC see note 1
6c	-->		SECURITY MODE COMPLETE	RRC see note 1

NOTE 1 In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Expected sequence for DSCH multi RAB test cases.

Step	Direction		Message	Comments
	UE	SS		
1..6	<-- -->		Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
7	<--		ACTIVATE RB TEST MODE (DCCH)	TC
8	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9	<--		RADIO BEARER SETUP (DCCH)	RRC
10	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
CASE A: If DTCH on FACH/RACH				
A10a	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
A10b	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
A10c	<--		Test data (DTCH)	SS Sends the data on the FACH
A10d	-->		Test data (DTCH)	SS Receives the data on RACH
A10e			Repeat steps 10c to 10d for every RACH/FACH sub-test	
A10f	<--		OPEN UE TEST LOOP (DCCH)	TC
A10g	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
A10h	<--		PHYSICAL SHARED CHANNEL ALLOCATION (SHCCH)	This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE. UM on SHCCH
A10i	-->		PUSCH CAPACITY REQUEST (SHCCH)	Confirm establishment of PUSCH and PDSCH channels
CASE B: If No DTCH on FACH/RACH				
B10a	<--		PHYSICAL SHARED CHANNEL ALLOCATION (SHCCH)	This message is used by UTRAN to assign physical resources to USCH/DSCH transport channels in TDD, for temporary usage by the UE. UM on SHCCH
B10b	-->		PUSCH CAPACITY REQUEST (SHCCH)	Confirm establishment of PUSCH and PDSCH channels
11	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test Here the UL TFS are restricted to test the simultaneous data on CS and PS RAB.
12	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC

Step	Direction		Message	Comments
	UE	SS		
14	<--		Test data (DTCH)	SS Sends the data on the PS RAB .(PDSCH) (Note 1)
15	-->		Test data (DTCH)	SS Receives the data on PS RAB
16	<--		OPEN UE TEST LOOP (DCCH)	TC
17	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every Shared Ch sub-test	
19			RB RELEASE (DCCH)	RRC Optional step
20	<--		DEACTIVATE RB TEST MODE (DCCH)	TC Optional step
21	-->		DEACTIVATE RB TEST MODE COMPLETE (DCCH)	TC Optional step

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Malta, 1st ñ 5th Nov. 2004

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CHANGE REQUEST

⌘ **TS34.123-1** **CR** 973 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Add to HCR TDD baseline IEs statement
Source:	⌘	InterDigital Communications Corp.
Work item code:	⌘	TDD
Date:	⌘	18/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	1. Make HCR TDD test effective.
Summary of change:	⌘	In Clause 8.1.2.2.4 Method of test: To step 1b of HCR & LCR TDD add sentence calling base line IEs to be changed/added too by this section. Also add header to all step 1b tables.
Consequences if not approved:	⌘	If changes are not approved, UE in TDD mode will not be properly tested.

Clauses affected:	⌘	8.1.2.2.4

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘ Affects Rel-4 and Rel-5 test cases.

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8.1.2.2.4 Method of test

Initial Condition

System Simulator: 1 cell. SCCPCH configuration as specified in 6.1.1 of TS 34.108.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

NOTE: This test requires that N300 is bigger than 0, which is the case (see default contents of SIB 1, specified in TS 34.108). Expiry of timer T300 is verified only for N300 values exceeding 1.

Test Procedure

Before the test starts, SYSTEM INFORMATION BLOCK TYPE 1, SYSTEM INFORMATION BLOCK TYPE 5 and SYSTEM INFORMATION BLOCK TYPE 7 message are modified and this modification is notified to the UE. An internal counter K in SS is initialized to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by use of selected PRACH from the available PRACH No.1 and PRACH No.2, after the operator attempts to make an outgoing call. SS ignores this message, increments K every time such a message is received and waits for T300 timer to expire. This cycle is repeated until K reaches N300. When K is equal to N300, the SS transmits an RRC CONNECTION SETUP message containing an IE ìRRC state indicatorî set to ëCELL_PCHí as specified in step 6 to the UE. The UE shall send another RRC CONNECTION REQUEST message on the uplink CCCH. SS replies with a valid RRC CONNECTION SETUP message. The UE shall then acknowledge the establishment of RRC connection by sending the RRC CONNECTION SETUP COMPLETE message on uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" different from the "MIB Value Tag" of the current Master Information Block. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH. See specific message contents.
1a				SS waits 5s (to ensure that the UE waits for the new value tag before re-reading system information)
1b	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 1 SYSTEM INFORMATION BLOCK TYPE 5 SYSTEM INFORMATION BLOCK TYPE 7	SS starts to transmit the MIB with the "MIB Value Tag" IE different from the original setting. At the same time, SS starts to transmit the affected SIB TYPE 1 , SIB TYPE 5 and SIB 7messages. See specific message contents.
1c				SS waits 5s (to ensure that the UE has time to read the new system information)
2				SS initializes counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
3	→		RRC CONNECTION REQUEST	See the clause 9 in TS 34.108 on default message content
4				SS increments K.
5				SS checks to see if K is equal to N300. If so, goes to step 6. Else, continues to execute step 3.
6	←		RRC CONNECTION SETUP	IE ìRRC state indicatorî is set to €CELL_PCHí.
7	→		RRC CONNECTION REQUEST	See specific message contents.
8	←		RRC CONNECTION SETUP	This is a legal message. See the clause 9 in TS 34.108 on default message content for RRC.
9				The UE configures the layer 1 and layer 2.
10	→		RRC CONNECTION SETUP COMPLETE	See clause 9 in TS 34.108 on default message content

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Not present
BCCH modification info	
- MIB Value Tag	Set to (Current MIB value tag + 1)
- BCCH Modification time	Not Present

SYSTEM INFORMATION TYPE 1 (Step 1b)

Use the default parameter values for the system information block with the same type specified in clause 6.1.0b of TS 34.108, with the following exceptions:

- UE Timers and constants in idle mode	
-T300	2000 milliseconds
-N300	3
-T312	10 seconds
- N312	1

SYSTEM INFORMATION TYPE 5 (Step 1b) - (FDD)

Use the default parameter values for the system information block with the same type specified in clause 6.1.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- SIB6 indicator	FALSE
- PICH Power offset	-5 dB
- CHOICE Mode	FDD
- AICH Power offset	-5 dB
- Primary CCPCH info	Not present
- PRACH system information list	
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	0
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional

Information Element	Value/remark
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- Normal	
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS addition information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- CTFC information	1
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- Gain factor fIc	11
- Gain factor fId	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#7)
- Available signature End Index	7 (ASC#7)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)

Information Element	Value/remark
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
CHOICE mode	FDD
- Primary CPICH DL TX power	31
- Constant value	ñ10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	3
- STTD indicator	FALSE
- AICH transmission timing	0
- PRACH info (PRACH No.2)	
- CHOICE mode	FDD
- Available Signature	'0000 0000 1111 1111'B
- Available SF	64
- Preamble scrambling code number	1
- Puncturing Limit	1.00
- Available Sub Channel number	'1111 1111 1111'B
- Transport Channel Identity	31
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	Configured
- Semi-static Transport Format information	
- Transmission time interval	20 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	
- Normal	
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS addition information	
- CHOICE CTFC Size	2 bit
- CTFC information	0
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factor

Information Element	Value/remark
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0 dB
- CTFC information	1
- Reference TFC ID	0
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- Gain factor fIc	11
- Gain factor fId	15
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- PRACH partitioning	
- Access Service Class	
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#1)
- Available signature End Index	7 (ASC#1)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#3)
- Available signature End Index	7 (ASC#3)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#5)
- Available signature End Index	7 (ASC#5)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- ASC Setting	Not Present
- ASC Setting	
- CHOICE mode	FDD
- Available signature Start Index	0 (ASC#7)
- Available signature End Index	7 (ASC#7)
- Assigned Sub-Channel Number	'1111'B The first/ leftmost bit of the bit string contains the most significant bit of the Assigned Sub-Channel Number.
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)

Information Element	Value/remark
CHOICE mode	FDD
- Primary CPICH DL TX power	31
- Constant value	ñ10
- PRACH power offset	
- Power Ramp Step	3dB
- Preamble Retrans Max	4
- RACH transmission parameters	
- Mmax	2
- NB01min	3 slot
- NB01max	10 slot
- AICH info	
- Channelisation code	4
- STTD indicator	FALSE
- AICH transmission timing	0

SYSTEM INFORMATION TYPE 5 (Step 1b) ñ 3.84 Mcps TDD

Use the default parameter values for the system information block with the same type specified in clause 6.1.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code	
- CHOICE SF	8
- Channelisation Code List	
- Channelisation Code	8/1
- Channelisation Code	8/2
- Channelisation Code	8/3
- Channelisation Code	8/4
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- Transport Channel Identity	15
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD

Information Element	Value/remark
- Available SYNC_UL codes indices	'11110000'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD
- PRACH info (PRACH No.2)	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Timeslot Number	14
- PRACH Channelisation Code	
- CHOICE SF	8

Information Element	Value/remark
- Channelisation Code List	
- Channelisation Code	8/5 where i denotes an unassigned code
- Channelisation Code	8/6 where i denotes an unassigned code
- Channelisation Code	8/7 where i denotes an unassigned code
- Channelisation Code	8/8 where i denotes an unassigned code
- PRACH Midamble	Direct
-PNBSCH allocation	Not Present
- RACH TFS	
- CHOICE Transport channel type	Common transport channels
- Dynamic Transport format information	
- RLC size	168
- Number of TB and TTI List	
- Transport Time Interval	Not Present
- Number of Transport Blocks	1
- CHOICE Logical Channel List	ALL
- Semi-static Transport Format information	
- Transmission time interval	10 ms
- Type of channel coding	Convolutional
- Coding Rate	1/2
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	

Information Element	Value/remark
- CHOICE mode	TDD
- CHOICE TDD option	3.84 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#7)
- CHOICE subchannel size	Size1
- Persistence scaling factor	
- Persistence scaling factor	0.9 (for ASC#2)
- Persistence scaling factor	0.9 (for ASC#3)
- Persistence scaling factor	0.9 (for ASC#4)
- Persistence scaling factor	0.9 (for ASC#5)
- Persistence scaling factor	0.9 (for ASC#6)
- Persistence scaling factor	0.9 (for ASC#7)
- AC-to-ASC mapping table	
- AC-to-ASC mapping	6 (AC0-9)
- AC-to-ASC mapping	5 (AC10)
- AC-to-ASC mapping	4 (AC11)
- AC-to-ASC mapping	3 (AC12)
- AC-to-ASC mapping	2 (AC13)
- AC-to-ASC mapping	1 (AC14)
- AC-to-ASC mapping	0 (AC15)
- CHOICE mode	TDD

SYSTEM INFORMATION TYPE 5 (Step 1b) ñ 1.28 Mcps TDD

Use the default parameter values for the system information block with the same type specified in clause 6.1.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark

3GPP TSGñT1 Meeting #25
Malta, 1st ñ 5th Nov. 2004

Tdoc ⌘T1-041605

CR-Form-v7

CHANGE REQUEST

⌘ **TS34.123-1** **CR** 974 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Add HCR to TDD IEs of Measurement report in 8.4.1.29.4
Source:	⌘	InterDigital Communications Corp.
Work item code:	⌘	TDD
Date:	⌘	18/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	1. Make HCR TDD test effective.
Summary of change:	⌘	In Clause 8.4.1.29.4 Method of test: To MEASUREMENT REPORT (Step 3, step 4, step 4d and step 4e) of LCR TDD add HCR by deleting reference to LCR
Consequences if not approved:	⌘	If changes are not approved, UE in HCR TDD mode will not be properly tested.

Clauses affected:	⌘	8.4.1.29.4			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects Rel-4 and Rel-5 test cases.			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4.1.29.4 Method of test

Ö {Skip to text with change}

MEASUREMENT REPORT (Step 3, step 4, step 4d and step 4e) (~~1.28 Mcps~~ TDD)

3GPP TSG-T WG1 Meeting #25
St Paulís Bay, Malta, 1-5 November 2004

Tdoc ⌘T1-041610

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **975** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 R5: New test cases for A-GPS failure cases
Source:	⌘	Qualcomm
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Various failure cases are not covered by A-GPS test cases.
Summary of change:	⌘	The following test cases are added: 17.2.3.8 LCS Mobile originated location request/ UE-Based or UE-Assisted GPS/ Assistance data request/ Failure 17.2.3.9 LCS Mobile originated location request/ UE-Based GPS/ Position estimate request/ Failure 17.2.4.10 LCS Mobile terminated location request/ UE-Based or UE-Assisted GPS/ Configuration incomplete
Consequences if not approved:	⌘	Failure cases remain uncovered by test suite.

Clauses affected:	⌘	17.2.3.8 (new), 17.2.3.9 (new), 17.2.4.10 (new)

Other specs affected:	⌘	Y	N		⌘	
			X	Other core specifications		
		X		Test specifications		TS 34.123-2
			X	O&M Specifications		

Other comments:	⌘	Affects REL-5, REL-4 and R99.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.2.3 Assisted GPS Mobile Originated Tests

[Ö]

17.2.3.8 LCS Mobile originated location request/ UE-Based or UE-Assisted GPS/ Assistance data request/ Failure

17.2.3.8.1 Definition

This test case applies to all UEs supporting UE-based or UE-assisted GPS Location Service capabilities and providing a method to trigger an MO-LR request for assistance data.

17.2.3.8.2 Conformance requirements

1) The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component.

2) If the network is unable to successfully fulfil the request received from the MS (e.g. to provide a location estimate or location assistance information), it shall clear the transaction by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080.

3) PositionMethodFailure: This error is returned by the network when the network is unable to obtain any of the location information requested or none of the information obtained satisfies the requested LCS QoS or if requested LCS assistance data could not be transferred or requested deciphering keys for broadcast assistance data could not be returned.

Reference(s):

- Conformance requirements 1 and 2: TS 24.030, subclause 5.1.1

- Conformance requirement 3: TS 24.080, subclause 4.3.2.29

17.2.3.8.3 Test Purpose

To verify the UE behaviour at a mobile originated location request for GPS assistance data where the network is unable to provide the requested GPS assistance data.

17.2.3.8.4 Method of Test

Initial Conditions

- System Simulator:

  - 1 cell, default parameters.

- User Equipment:

  - The UE is in state "MM idle" with valid TMSI and CKSN.

  - The UE is in state ìPMM idleî with valid P-TMSI

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS, or UE Assisted Network Assisted GPS

- Method of triggering an MO-LR request for assistance data.

Test Procedure

The UE invokes call independent supplementary service through a CM SERVICE REQUEST. The SS initiates authentication and ciphering.

The UE invokes an MO-LR request of type ìassistanceDataî.

The SS is unable to provide the requested assistance data.

The SS sends a RELEASE COMPLETE message containing a return error component.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	->			The UE establishes an RRC connection for location service. The SS verifies that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìOriginated High Priority Signallingî.
2	->		CM SERVICE REQUEST	The CM service type IE indicates "call independent supplementary serviceî
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	SS			The SS starts ciphering and integrity protection.
6	->		REGISTER	Call Independent SS containing Facility IE with an LCS MO-LR request of type ìassistanceDataî.
7	SS			SS is unable to provide the requested assistance data
8	<-		RELEASE COMPLETE	SS terminates the dialogue containing a return error component
9	SS			The SS waits for 10 seconds to verify that the UE does not send a RELEASE COMPLETE message.
10	SS			The SS releases the RRC connection and the test case ends

Specific Message Contents

REGISTER (Step 6)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = LCS-MOLR LCS-MOLRArg molr-Type ->assistanceData locationMethod -> assistedGPS gpsAssistanceData -> OCTET STRING Octets 1 to 38 are coded in the same way as octets 3 to 7+2n of Requested GPS Data IE in 3GPP TS 49.031
SS version indicator	Value 1 or above

RELEASE COMPLETE (Step 8)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	RELEASE COMPLETE (0x10 1010)
Facility	Return error = LCS-MOLR Error -> positionMethodFailure

17.2.3.8.5 Test requirements

After step 5 the UE shall transmit a REGISTER message with an LCS MO-LR request with the IE ìMOLR-Typeî set to ìassistanceDataî.

During step 9 the UE shall not send any RELEASE COMPLETE message.

17.2.3.9 LCS Mobile originated location request/ UE-Based GPS/ Position estimate request/ Failure

17.2.3.9.1 Definition

This test case applies to all UEs supporting UE-Based GPS Location Service capabilities and providing a method to trigger an MO-LR request for a position estimate.

17.2.3.9.2 Conformance requirements

1) The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component. SS Version Indicator value 1 or above shall be used.

2) if the IE "Measurement command" has the value "modify":

   2> for all IEs present in the MEASUREMENT CONTROL message:

      3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

         4> if measurement type is set to "UE positioning measurement" and the IE "UE positioning GPS assistance data" is present, for any of the optional IEs "UE positioning GPS reference time", "UE positioning GPS reference UE position", "UE positioning GPS DGPS corrections", "UE positioning GPS ionospheric model", "UE positioning GPS UTC model", "UE positioning GPS acquisition assistance", "UE positioning GPS real-time integrity" that are present in the MEASUREMENT CONTROL message:

            5> replace all instances of the IEs listed above (and all their children) stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the IEs received in the MEASUREMENT CONTROL message;

            5> leave all other stored information elements unchanged in the variable MEASUREMENT_IDENTITY.

3) If the IE "UE positioning GPS Navigation Model" is included, for each satellite, the UE shall:

   1> use IE "Satellite Status" to determine if an update of IE "UE positioning GPS Ephemeris and Clock Correction parameters" has been provided for the satellite indicated by the IE "SatID";

   1> if an update has been provided for this satellite:

      2> act as specified in subclause 8.6.7.19.3.4.

   If the IE "UE positioning GPS Ephemeris and Clock Correction parameters" is included, for each satellite, the UE shall:

   1> update the variable UE_POSITIONING_GPS_DATA as follows:

      2> store this IE at the position indicated by the IE "Sat ID" in the IE "UE positioning GPS Navigation Model" in the variable UE_POSITIONING_GPS_DATA, possibly overwriting any existing information in this position.

   1> act on these GPS ephemeris and clock correction parameters in a manner similar to that specified in [12].

4) The UE shall when a measurement report is triggered:

   2> if the UE has been able to calculate a position after performing measurements on the cells included in the variable UE_POSITIONING_OTDOA_DATA_UE_BASED in case of OTDOA or on the list of satellites included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning:

      3> include IE "UE positioning Position Estimate Info" in the MEASUREMENT REPORT and set the contents of the IE as follows:

4> if the UE does not support the capability to perform the UE GPS timing of cell frames measurement; or

4> if the IE "GPS timing of Cell wanted" is set to FALSE:

5> include the IE "GPS TOW msec".

4> if IE "Vertical Accuracy" has been included in IE "UE positioning reporting quantity":

5> if the IE "Vertical Accuracy" has been assigned to a value unequal to "0":

6> if the UE has been able to calculate a 3-dimensional position:

7> include IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.

6> if the UE has not been able to calculate a 3-dimensional position:

7> act as if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity".

4> if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity":

5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to value "0":

6> may include IE "Ellipsoid point".

5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to a value unequal to 0:

6> include either IE "Ellipsoid point with uncertainty circle" or IE "Ellipsoid point with uncertainty ellipse" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.

5) The UE shall set the contents of the IE "UE positioning Error" as follows:

Ö

1> if the IE "Positioning Methods" in IE "UE positioning reporting quantity" has been assigned to value "GPS":

2> if there were not enough GPS satellites to be received:

3> set IE "Error reason" to "Not Enough GPS Satellites".

2> if some GPS assistance data was missing:

3> set IE "Error reason" to "Assistance Data Missing"; and

3> if the IE ""Additional Assistance Data Request" included in the IE "UE positioning reporting quantity" stored in the variable MEASUREMENT_IDENTITY is set to TRUE:

4> include the IE "GPS Additional Assistance Data Request".

6) If the network is unable to successfully fulfil the request received from the MS (e.g. to provide a location estimate or location assistance information), it shall clear the transaction by sending a RELEASE COMPLETE message containing a return error component. Error values are specified in 3GPP TS 24.080.

7) PositionMethodFailure: This error is returned by the network when the network is unable to obtain any of the location information requested or none of the information obtained satisfies the requested LCS QoS or if requested LCS assistance data could not be transferred or requested deciphering keys for broadcast assistance data could not be returned.

Reference(s):

- Conformance requirements 1 and 6: TS 24.030, subclause 5.1.1
- Conformance requirement 2: TS 25.331, subclause 8.4.1.3.
- Conformance requirement 3: TS 25.331, subclauses 8.6.7.19.3.3a, 8.6.7.19.3.4.
- Conformance requirement 4: TS 25.331, subclause 8.6.7.19.1b
- Conformance requirement 5: TS 25.331, subclause 8.6.7.19.5
- Conformance requirement 7: TS 24.080, subclause 4.3.2.29
- Reference [12] in these conformance requirements denotes document ICD-GPS-200: ì Navstar GPS Space Segment/Navigation User Interfaceî .

17.2.3.9.3 Test Purpose

To verify the UE behaviour at a mobile originated location request procedure using network-assisted UE-based GPS when the MO-LR procedure fails due to failure of positioning method.

17.2.3.9.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellite Simulator is switched off
- User Equipment:
  - The UE is in state "MM idle" with valid TMSI and CKSN.
  - The UE is in state ì PMM idleî with valid P-TMSI

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS
- Method of triggering an MO-LR request for a position estimate.

Test Procedure

The UE invokes call independent supplementary service through a CM SERVICE REQUEST. The SS initiates authentication and ciphering.

Then the UE invokes an MO-LR request of type ì locationEstimateî . The SS orders an A-GPS positioning measurement using three MEASUREMENT CONTROL messages, including assistance data.

The UE sends a MEASUREMENT REPORT message reporting a positioning error for not enough satellite signals received.

The SS sends a RELEASE COMPLETE message containing a return error component.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	->			The UE establishes an RRC connection for location service. The SS verifies that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìOriginated High Priority Signallingî.
2	->		CM SERVICE REQUEST	The CM service type IE indicates "call independent supplementary serviceî
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	SS			The SS starts ciphering and integrity protection.
6	->		REGISTER	Call Independent SS containing Facility IE with a LCS MO-LR request of type ìlocationEstimateî.
7	<-		MEASUREMENT CONTROL	
8	<-		MEASUREMENT CONTROL	
9	<-		MEASUREMENT CONTROL	
10	->		MEASUREMENT REPORT	Positioning error report ìnot enough GPS satellitesî
11	SS			SS is unable to fulfil the MO-LR request
12	<-		RELEASE COMPLETE	SS terminates the dialogue containing a return error component

Specific Message Contents

REGISTER (Step 6)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = LCS-MOLR LCS-MOLRArg molr-Type ->locationEstimate
SS version indicator	Value 1 or above

MEASUREMENT CONTROL (Step 7):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the first MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 8):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	Not present
Additional Measurements List	Not present
CHOICE *Measurement type*	
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the second MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 9):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the third MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 10):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Not present
- UE positioning error	
- Error reason	Not Enough GPS Satellites
- GPS additional assistance data request	
- Almanac	Not checked
- UTC model	Not checked
- Ionospheric model	Not checked
- Navigation model	Not checked
- DGPS corrections	Not checked
- Reference location	Not checked
- Reference time	Not checked
- Acquisition assistance	Not checked
- Real-time integrity	Not checked
- Navigation model additional data	Not checked
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

RELEASE COMPLETE (Step 12)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	RELEASE COMPLETE (0x10 1010)
Facility	Return error = LCS-MOLR Error -> positionMethodFailure

17.2.3.9.5 Test requirements

After step 5 the UE shall transmit a REGISTER message with a LCS MO-LR request with the IE ìMOLR-Typeî set to ìlocationEstimateî.

After step 9, the UE shall respond with a MEASUREMENT REPORT message containing the IE ìUE positioning erroriî, with ìError reasoniî set to ìNot Enough GPS Satellitesî.

[Ö]

17.2.4 Assisted GPS Mobile Terminated Tests

[Ö]

17.2.4.10 LCS Mobile terminated location request/ UE-Based or UE-Assisted GPS/ Configuration Incomplete

17.2.4.10.1 Definition

This test case applies to all UEs supporting UE-based but not UE-assisted network assisted GPS, or supporting UE-assisted but not UE-based network assisted GPS.

17.2.4.10.2 Conformance requirements

1) The network invokes a location notification procedure by sending a REGISTER message containing a LCS-LocationNotification invoke component to the UE. This may be sent either to request verification for MT-LR or to notify about already authorized MT-LR.

2) In the case of location notification no response is required from the MS, the MS shall terminate the dialogue by sending a RELEASE COMPLETE message containing a LocationNotification return result.

3) The UE shall perform the following consistency check:

1> if UE, according to its capabilities, does not support UE-based OTDOA and if IE "Positioning Methods" is set to "OTDOA" and if IE "Method Type" is set to "UE-based":

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> if UE, according to its capabilities, does not support UE-based GPS and if IE "Positioning Methods" is set to "GPS" and if IE "Method Type" is set to "UE-based":

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> if UE, according to its capabilities, does not support UE-assisted GPS and if IE "Positioning Methods" is set to "GPS" and if IE "Method Type" is set to "UE-assisted":

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> if UE, according to its capabilities, does not support UE-based positioning and if IE "Positioning Methods" is set to "OTDOAorGPS" and if IE "Method Type" is set to "UE-based":

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> if UE, according to its capabilities, does not support Rx-Tx time difference type 2 measurement and if IE "Positioning Methods" is set to "Cell ID":

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> if UE, according to its capabilities, does not support UE GPS timing of cell frames measurement and if IE "GPS timing of Cell wanted" is set to TRUE:

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

4) If the variable CONFIGURATION_INCOMPLETE is set to TRUE, the UE shall:

1> retain the measurement configuration that was valid before the MEASUREMENT CONTROL message was received;

1> set the IE "RRC transaction identifier" in the MEASUREMENT CONTROL FAILURE message to the value of "RRC transaction identifier" in the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS and clear that entry;

1> clear the variable CONFIGURATION_INCOMPLETE;

1> set the cause value in IE "failure cause" to "Configuration incomplete";

1> submit the MEASUREMENT CONTROL FAILURE message to lower layers for transmission on the DCCH using AM RLC;

1> continue with any ongoing processes and procedures as if the invalid MEASUREMENT CONTROL message has not been received;

1> and the procedure ends.

References

- Conformance requirement 1, 2: TS 24.030, clause 4.1.1.
- Conformance requirement 3: TS 25.331, clause 8.6.7.19.1
- Conformance requirement 4: TS 25.331, clause 8.4.1.4a

17.2.4.10.3 Test Purpose

To verify that the UE sends a MEASUREMENT CONTROL FAILURE message, after receiving a MEASUREMENT CONTROL message with IE ìMethod Typeî set a value which is inconsistent with the UE positioning capabilities.

To verify that the UE set the "failure cause" IE to value "configuration incomplete" in the uplink MEASUREMENT CONTROL FAILURE message.

17.2.4.10.4 Method of Test

Initial Conditions

System Simulator (SS):

- 1 cell, default parameters
- Satellites: As specified in 17.2.1.2

UE:

- State CS-DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS
- UE Assisted Network Assisted GPS

Test Procedure

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke component set to notifyLocationAllowed.

The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result.

The SS sends a MEASUREMENT CONTROL message with ìMethod typeî set to a value not supported by the UE as indicated in the ìUE positioning capabilityî contained in the ìUE radio access capabilityî.

The UE sends a MEASUREMENT CONTROL FAILURE message with Failure Cause ìConfiguration Incompleteî.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyLocationAllowed
2	UE			The UE notifies the user of the location request
3	->		RELEASE COMPLETE	The UE terminates the dialogue
4	SS			SS verifies that UE does not support both UE-based and UE-assisted GPS
5	<-		MEASUREMENT CONTROL	IE ìMethod typeî is set to a method not supported by the UE Assistance data set as indicated for ìAdequate assistance data for UE-assisted A-GPSî in section 17.2.1.3 (for UE-assisted), or as indicated for the first MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in section 17.2.1.3 (for UE-based)
6	->		MEASUREMENT CONTROL FAILURE	Failure cause ìConfiguration Incompleteî
7	SS			SS releases the connection and the test case ends

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyLocationAllowed locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 3)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 RELEASE COMPLETE (0x10 1010) Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

MEASUREMENT CONTROL (Step 5):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	Set to a method not supported by the UE
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	If ìMethod typeî is set to ìUE-basedî: Set as specified for the first MEASUREMENT REPORT message in ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3 If ìMethod typeî is set to ìUE-assistedî: Set as specified in ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL FAILURE (Step 6)

Information Element	Value/remark
RRC transaction identifier	Set to the same value of the same IE in the MEASUREMENT CONTROL message sent in Step 5
Failure cause	Configuration incomplete

17.2.4.10.5 Test requirements

After step 2 the UE shall send a RELEASE COMPLETE message.

After step 5, the UE shall transmit MEASUREMENT CONTROL FAILURE message, stating the IE "failure cause" as "configuration incomplete". The UE shall not transmit any MEASUREMENT REPORT messages during the execution of this test case.

3GPP TSG-T WG1 Meeting #25
St Paulís Bay, Malta, 1-5 November 2004

Tdoc ⌘T1-041612

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **976** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 R5: Editorial corrections to A-GPS test cases
Source:	⌘	Qualcomm
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Editorial errors are present in some A-GPS test cases.
Summary of change:	⌘	1) ìUE Based GPSî corrected to ìUE Based Network Assisted GPSî in cases 17.2.4.2 and 17.2.4.3. 2) Obsolete descriptive text deleted from test requirements in cases 17.2.2.1 and 17.2.2.2. 3) Parameter names corrected in FACILITY and RELEASE COMPLETE messages in cases 17.2.4.1 through 17.2.4.5. 4) Description of assistance data settings corrected in message sequence table and message contents in case 17.2.4.5. 5) Formatting corrected in cases where A-GPS PICS/PIXIT statement was inexplicably underlined and typeset in blue.
Consequences if not approved:	⌘	Editorial errors persist.

Clauses affected:	⌘	17.2.2.1.4, 17.2.2.1.5, 17.2.2.2.4, 17.2.2.2.5, 17.2.4.1.4, 17.2.4.2.4, 17.2.4.3.4, 17.2.4.4.4, 17.2.4.5.4

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Affects REL-5, REL-4 and R99.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.2.2 Assisted GPS Network Induced Tests

17.2.2.1 LCS Network Induced location request/ UE-Based GPS/ Emergency Call / with USIM

[Ö]

17.2.2.1.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellites: As specified in 17.2.1.2
- User Equipment:
  - the UE shall be in a state where no assistance data is stored in the UE.
  - the UE is in state "MM idle" with valid TMSI and CKSN.

Related PICS/PIXIT Statements

- Emergency speech call yes/no
- UE Based Network Assisted GPS
- Method of clearing stored GPS assistance data

[Ö]

17.2.2.1.5 Test requirements

After step 12 the UE shall have through connected the DTCH in both directions.

After step 16 the UE shall respond with a MEASUREMENT REPORT message~~ of either ìType 1î or ìType 2î as specified in subclause 17.2.2.1.4.~~

17.2.2.2 LCS Network Induced location request/ UE-Based GPS/ Emergency Call / without USIM

[Ö]

17.2.2.2.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellites: As specified in 17.2.1.2
- User Equipment:
  - the UE shall be in a state where no assistance data is stored in the UE.
  - the UE is in MM-state "MM idle, no IMSI", no USIM inserted.

Related PICS/PIXIT Statements

- Emergency speech call yes/no

- UE Based Network Assisted GPS
- Method of clearing stored GPS assistance data

[Ö]

17.2.2.2.5 Test requirements

After step 10 the UE shall have through connected the DTCH in both directions.

After step 14 the UE shall respond with a MEASUREMENT REPORT message containing a position estimate~~ as specified in subclause 17.2.2.2.4.~~

[Ö]

17.2.4 Assisted GPS Mobile Terminated Tests

17.2.4.1 LCS Mobile terminated location request/ UE-Based GPS

[Ö]

17.2.4.1.4 Method of Test

Initial Conditions

System Simulator (SS):

1 cell, default parameters

Satellites: As specified in 17.2.1.2

UE:

State CS-DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108

Related PICS/PIXIT Statements

- UE supporting CS domain services
- UE Based Network Assisted GPS

Test Procedure

The SS sends an SS REGISTER message containing a Facility IE containing a DTAP LCS Location Notification Invoke message set to notifyLocationAllowed. The LCS Client Name contained in the USSD text string of the lcs-LocationNotification shall be displayed. The UE then responds with a RELEASE COMPLETE message containing a LocationNotification return to terminate the dialogue.

The SS orders an A-GPS positioning measurement using three MEASUREMENT CONTROL messages. The assistance data includes navigation models for the satellites including a number of non-existing satellites. The last MEASUREMENT CONTROL message orders periodical reporting.

The UE then initiates periodic measurement reporting and sends a MEASUREMENT REPORT message including a location estimate.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyLocationAllowed
2	UE			The UE displays information about LCS client
3	->		RELEASE COMPLETE	The UE terminates the dialogue
4	<-		MEASUREMENT CONTROL	
5	<-		MEASUREMENT CONTROL	
6	<-		MEASUREMENT CONTROL	Periodical reporting is configured.
7	->		MEASUREMENT REPORT	

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = lcs-LocationNotification LocationNotificationArg notificationType -> notifyLocationAllowed, locationType -> current Location , lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme~~String~~ nameString

RELEASE COMPLETE (Step 3)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	RELEASE COMPLETE (0x10 1010) Return result = lcs-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

[Ö]

17.2.4.2 LCS Mobile-terminated location request/UE-Based GPS/ Request of additional assistance data/ Success

[Ö]

17.2.4.2.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellites: As specified in 17.2.1.2
- User Equipment:
  - The UE shall begin the test with no GPS assistance data stored.
  - The UE is in state "MM idle" with valid TMSI and CKSN.

- The UE is in state ìPMM idleî with valid P-TMSI
- The UE is in CELL_DCH state.

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS
- Method of clearing stored GPS assistance data

Test Procedure

The SS sends an SS REGISTER message containing a Facility IE containing a DTAP LCS Location Notification Invoke message set to notifyLocationAllowed. The LCS Client Name contained in the USSD text string of the lcs-LocationNotification shall be displayed. The UE then responds with a RELEASE COMPLETE message containing a LocationNotification return to terminate the dialogue.

The SS orders an A-GPS positioning measurement using MEASUREMENT CONTROL including no assistance data.

The UE sends a MEASUREMENT REPORT message to report a positioning error, requesting further assistance data. The SS response with a MEASUREMENT CONTROL message that includes assistance data for four satellites and instructs the UE not to repeat the request for assistance data. Two supplementary MEASUREMENT CONTROL messages provide assistance data for four additional satellites each, and the last message orders periodic reporting.

The UE performs positioning measurements and responds with a MEASUREMENT REPORT message containing a valid position estimate in the IE ìUE Positioning Position Estimate Infoî.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		<-	REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyLocationAllowed
2	UE			The UE displays information about LCS client
3		->	RELEASE COMPLETE	The UE terminates the dialogue
4		<--	MEASUREMENT CONTROL	No assistance data, and ìAdditional Assistance Data Requestî IE set to TRUE.
5		-->	MEASUREMENT REPORT	Positioning error report with request for further assistance data.
6		<--	MEASUREMENT CONTROL	
7		<--	MEASUREMENT CONTROL	
8		<--	MEASUREMENT CONTROL	Reporting mode: Periodical reporting Amount of reporting: 1 Reporting interval: 64000
9		-->	MEASUREMENT REPORT	Measurement report message containing UE position estimate.

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = lcs-LocationNotification LocationNotificationArg notificationType -> notifyLocationAllowed, locationType -> current Location , lcsClientExternalID -> externalAddress lcsClientName ->dataCodingSchemeStringnameString

RELEASE COMPLETE (Step 3)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	RELEASE COMPLETE (0x10 1010) Return result = lcs-LocationNotification LocationNotificationRes _____ verificationResponse -> permissionGranted

[Ö]

17.2.4.3 LCS Mobile-terminated location request/UE-Based GPS/ Failure ñ Not Enough Satellites

[Ö]

17.2.4.3.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellite Simulator is switched off.
- User Equipment:
  - The UE shall begin the test with no GPS assistance data stored.
  - The UE is in state "MM idle" with valid TMSI and CKSN.
  - The UE is in state ì PMM idleî with valid P-TMSI
  - The UE is in CELL_DCH state.

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS
- Method of clearing stored GPS assistance data

Test Procedure

The SS sends an SS REGISTER message containing a Facility IE containing a DTAP LCS Location Notification Invoke message set to notifyLocationAllowed. The LCS Client Name contained in the USSD text string of the lcs-LocationNotification shall be displayed. The UE then responds with a RELEASE COMPLETE message containing a LocationNotification return to terminate the dialogue.

The SS orders an A-GPS positioning measurement using three MEASUREMENT CONTROL messages. The assistance data includes navigation models for the satellites including a number of non-existing satellites. The last MEASUREMENT CONTROL message orders periodical reporting.

The UE sends a MEASUREMENT REPORT message reporting a positioning error for not enough satellite signal.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyLocationAllowed
2	UE			The UE displays information about LCS client
3	->		RELEASE COMPLETE	The UE terminates the dialogue
4 5 6 7	<-- <-- <--<br-->		MEASUREMENT CONTROL MEASUREMENT CONTROL MEASUREMENT CONTROL MEASUREMENT REPORT	 Periodical reporting is configured Positioning error report ënot enough GPS satellitesí

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 REGISTER (0x11 1011) Invoke = lcs-LocationNotification LocationNotificationArg notificationType -> notifyLocationAllowed, locationType -> current Location , lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme~~String~~ nameString

RELEASE COMPLETE (Step 3)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 RELEASE COMPLETE (0x10 1010) Return result = lcs-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

[Ö]

17.2.4.4 LCS Mobile terminated location request/ UE-Assisted GPS/ Success

[Ö]

17.2.4.4.4 Method of Test

Initial Conditions

System Simulator (SS):

1 cell, default parameters

Satellites: As specified in 17.2.1.2

UE:

State CS-DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108

Related PICS/PIXIT Statements

- UE supporting CS domain services
- UE Assisted Network Assisted GPS

Test Procedure

The SS sends an SS REGISTER message containing a Facility IE containing a DTAP LCS Location Notification Invoke message set to notifyLocationAllowed. The LCS Client Name contained in the USSD text string of the lcs-LocationNotification shall be displayed. The UE then responds with a RELEASE COMPLETE message containing a LocationNotification return to terminate the dialogue.

The SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message. The assistance data is as described in section 17.2.1.3.3 (Adequate assistance data for UE-assisted A-GPS). The MEASUREMENT CONTROL message orders periodical reporting.

The UE then initiates periodic measurement reporting and sends a MEASUREMENT REPORT message including the IE ì UE positioning GPS measured resultsî .

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyLocationAllowed
2	UE			The UE displays information about LCS client
3	->		RELEASE COMPLETE	The UE terminates the dialogue
4	<-		MEASUREMENT CONTROL	Periodical reporting is configured.
5	->		MEASUREMENT REPORT	

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = lcs-LocationNotification LocationNotificationArg notificationType -> notifyLocationAllowed, locationType -> current Location , lcsClientExternalID -> externalAddress lcsClientName ->dataCodingSchemeString nameString

RELEASE COMPLETE (Step 3)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	RELEASE COMPLETE (0x10 1010) Return result = lcs-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

[Ö]

17.2.4.5 LCS Mobile terminated location request/ UE-Assisted GPS/ Request for additional assistance data/ Success

[Ö]

17.2.4.5.4 Method of Test

Initial Conditions

System Simulator (SS):

1 cell, default parameters

Satellites: As specified in 17.2.1.2

UE:

State CS-DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108

Related PICS/PIXIT Statements

- UE supporting CS domain services
- UE Assisted Network Assisted GPS

Test Procedure

The SS sends an SS REGISTER message containing a Facility IE containing a DTAP LCS Location Notification Invoke message set to notifyLocationAllowed. The LCS Client Name contained in the USSD text string of the lcs-LocationNotification shall be displayed. The UE then responds with a RELEASE COMPLETE message containing a LocationNotification return to terminate the dialogue.

The SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message. The assistance data is as described in section 17.2.1.3.2 (Inadequate assistance data for UE-assisted A-GPS). The MEASUREMENT CONTROL message orders periodical reporting.

The UE then initiates periodic measurement reporting and sends a MEASUREMENT REPORT message including a request for additional assistance data. The SS responds with a MEASUREMENT CONTROL message containing assistance data as specified in section 17.2.1.3.3 (Adequate assistance data for UE-assisted A-GPS). The UE sends a MEASUREMENT REPORT message including the IE ìUE positioning GPS measured resultsî.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyLocationAllowed
2	UE			The UE displays information about LCS client
3	->		RELEASE COMPLETE	The UE terminates the dialogue
4	<-		MEASUREMENT CONTROL	Periodical reporting is configured. Assistance data set as specified in section 17.2.1.3.2 (Inadequate assistance data for UE-assisted A-GPS).
5	->		MEASUREMENT REPORT	UE requests additional assistance data.
6	<-		MEASUREMENT CONTROL	Assistance data set as ~~specified in section 17.2.1.3.3 (Adequate assistance data for UE-assisted A-GPS).~~ requested by the UE in step 5.
7	->		MEASUREMENT REPORT	UE sends the IE ìUE positioning GPS measured resultsî.

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = lcs-LocationNotification LocationNotificationArg notificationType -> notifyLocationAllowed, locationType -> current Location , lcsClientExternalID -> externalAddress lcsClientName - >~~dataCodingString~~dataCodingScheme nameString

RELEASE COMPLETE (Step 3)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	RELEASE COMPLETE (0x10 1010) Return result = lcs-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

MEASUREMENT CONTROL (Step 4):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	TRUE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìInadequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 5):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Not present
- UE positioning error	
- Error reason	Assistance Data Missing
- GPS additional assistance data request	
- Almanac	~~Not checked~~ Present, if requested by UE
- UTC model	~~Not checked~~ Present, if requested by UE
- Ionospheric model	~~Not checked~~ Present, if requested by UE
- Navigation model	~~Not checked~~ Present, if requested by UE
- DGPS corrections	~~Not checked~~ Present, if requested by UE
- Reference location	~~Not checked~~ Present, if requested by UE
- Reference time	~~Not checked~~ Present, if requested by UE
- Acquisition assistance	~~Not checked~~ Present, if requested by UE
- Real-time integrity	~~Not checked~~ Present, if requested by UE
- Navigation model additional data	~~Not checked~~ Present, if requested by UE
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

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CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **977** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 R5: Corrections to A-GPS test cases
Source:	⌘	Qualcomm
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘
1) Case 17.2.2.3: An MT-LR case was mistakenly placed under this NI-LR section.
2) Case 17.2.2.4: Incomplete conformance requirements; incorrect description of emergency number in message table; missing test requirement for DTCH through-connection.
3) Case 17.2.3.2: Contents of some messages are missing.
4) Case 17.2.3.3: Title specifies ìUE Basedî, but case is independent of positioning method; REGISTER message omitted from test procedure; description of ASSISTANCE DATA DELIVERY message incorrect; some message contents omitted.
5) Case 17.2.3.4: ìReferencesî header missing from conformance requirements; some fields misnamed in message contents; FACILITY and RELEASE COMPLETE message contents omitted.
6) Case 17.2.3.5: Merged into 17.2.3.3.
7) Mysterious underlining and blue typesetting of PICS/PIXIT parameters.

Summary of change: ⌘
1) Correct body of NI-LR test case inserted.
2) Additional conformance requirement text inserted; emergency number description replaced; omitted test requirement added.
3) Added contents for REGISTER, FACILITY, and RELEASE COMPLETE messages.
4) Corrected title; added REGISTER message and renumbered test steps accordingly; updated description of assistance data; added contents of REGISTER, FACILITY, and RELEASE COMPLETE messages.
5) Replaced missing text and messages; corrected parameter names.
6) Test case deleted and replaced by void clause.
7) Text formatting for these parameters rendered more normal.

Consequences if not approved:	⌘	Test cases will not accurately reflect the intended functionality.

Clauses affected:	⌘	17.2.2.3, 17.2.2.4, 17.2.3.2, 17.2.3.3, 17.2.3.4, 17.2.3.5			
Other specs affected:	⌘	**Y** / **N** / **X** **X** / / **X**	Other core specifications Test specifications O&M Specifications	⌘	
Other comments:	⌘	Affects REL-5, REL-4 and R99.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.2.2 Assisted GPS Network Induced Tests

[Ö]

17.2.2.3 LCS Network induced location request/ UE-Assisted GPS/ Emergency call/ With USIM

[Ö]

17.2.2.3.3 Test Purpose

~~To verify the UE behaviour in the mobile terminated location request procedure using network assisted UE assisted GPS to deliver UE positioning measurements to the network.~~

To verify when an emergency call is initiated by a UE with a USIM, and the network performs a location request using the RRC measurement control procedure by sending Measurement Control message , then the UE respond with a Measurement Report containing ì UE positioning GPS measured resultsî .

17.2.2.3.4 Method of Test

Initial Conditions

System Simulator (SS):

1 cell, default parameters

Satellites: As specified in 17.2.1.2

UE:

~~State CS_DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108~~

- the UE is in state "MM idle" with valid TMSI and CKSN.

Related PICS/PIXIT Statements

- ~~UE supporting CS domain services~~ Emergency speech call yes/no
- UE Assisted Network Assisted GPS

Test Procedure

~~The SS sends an SS REGISTER message containing a Facility IE containing a DTAP LCS Location Notification Invoke message set to notifyLocationAllowed. The LCS Client Name contained in the USSD text string of the lcs-LocationNotification shall be displayed. The UE then responds with a RELEASE COMPLETE message containing a LocationNotification return to terminate the dialogue.~~

~~The SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message. The assistance data is as described in section 17.2.1.3.3 (Adequate assistance data for UE assisted A-GPS). The MEASUREMENT CONTROL message orders periodical reporting.~~

~~The UE then initiates periodic measurement reporting and sends a MEASUREMENT REPORT message including the IE ì UE positioning GPS measured resultsî .~~

The UE is made to initiate an emergency call.

After the call has been through-connected in both directions, the SS orders an A-GPS positioning measurement using MEASUREMENT CONTROL procedure.

The UE then performs positioning measurements and responds with the RRC message MEASUREMENT REPORT.

Finally the SS clears the call.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyLocationAllowed
2	UE			The UE displays information about LCS client
3	->		RELEASE COMPLETE	The UE terminates the dialogue
4	<-		MEASUREMENT CONTROL	Periodical reporting is configured.
5	->		MEASUREMENT REPORT	

Step	Direction		Message	Comments
	UE	SS		
1	UE			The "emergency number" is entered. Number shall be one programmed in test USIM EF_{ECC} (Emergency Call Codes), ref. 34.108 clause 8.3.2.21.
2	-->			UE establishes RRC procedure for emergency call. Establishment cause: Emergency Call SS checks that the UE capability includes A-GPS UE assisted positioning measurement
3	-->		CM SERVICE REQUEST	The CM service type IE indicates "emergency call establishment".
4	<--		AUTHENTICATION REQUEST	IE Authentication Parameter AUTN shall be present in the message.
5	-->		AUTHENTICATION RESPONSE	SRES specifies correct value.
6	SS			SS starts security procedure.
7	-->		EMERGENCY SETUP	If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed.
8	<--		CALL PROCEEDING	
9	<--		ALERTING	
10	<--			SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
11	<--		CONNECT	
12	-->		CONNECT ACKNOWLEDGE	
13	UE			The DTCH is through connected in both directions.
14	<-		MEASUREMENT CONTROL	
15	-->		MEASUREMENT REPORT	
16	<--		DISCONNECT	SS disconnects the call and associated radio bearer.

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = lcs-LocationNotification LocationNotificationArg notificationType -> notifyLocationAllowed, locationType -> current Location , lcsClientExternalID -> externalAddress lcsClientName ->dataCodingString nameString

~~RELEASE COMPLETE (Step 3)~~

~~Information element~~	~~Value/remark~~
~~Protocol Discriminator~~	~~Call Independent SS message (1011)~~
~~Transaction identifier~~ ~~Message type~~ ~~Facility~~	~~RELEASE COMPLETE (0x10 1010)~~ ~~Return result = lcs-LocationNotification~~ ~~verificationResponse > permissionGranted~~

MEASUREMENT CONTROL (Step 14):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 15)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

17.2.2.3.5 Test requirements

~~After step 2 the UE shall send a RELEASE COMPLETE message.~~

After step 12 the UE shall have through connected the DTCH in both directions.

After step 14 the UE shall send a MEASUREMENT REPORT message containing the IE ì UE positioning GPS measured resultsî .

17.2.2.4 LCS Network induced location request/ UE-Assisted GPS/ Emergency call/ Without USIM

17.2.2.4.1 Definition

This test case applies to all UEs supporting UE-assisted A-GPS Location Service capabilities.

17.2.2.4.2 Conformance requirements

1) A MM connection for an emergency call may be established in all states of the mobility management sublayer which allow MM connection establishment for a normal originating call.

When a user requests an emergency call establishment the UE will send a CM SERVICE REQUEST message to the network with a CM service type information element indicating emergency call establishment.

Normally, the UE will be identified by an IMSI or a TMSI. However, if none of these identifiers is available in the UE, then the UE shall use the IMEI for identification purposes.

2) As a serving network option, emergency calls may be established without the network having to apply the security mode procedure as defined in TS 24.008.

The following are the only cases where the "security procedure not applied" option may be used:

a) Authentication is impossible because the USIM is absent.

32) Having entered the "MM connection pending" state, upon MM connection establishment, the call control entity of the UE sends a setup message to its peer entity. This setup message is

- a SETUP message, if the call to be established is a basic call; and
- an EMERGENCY SETUP message, if the call to be established is an emergency call.

43) if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

Ö

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

54) The UE shall:

1> when a measurement report is triggered:

2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE_POSITIONING_OTDOA_DATA_UE_ASSISTED in case of OTDOA or one satellite included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:

3> if the IE "Vertical Accuracy" is included:

4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.

3> if the IE "Positioning Methods" is set to "GPS":

4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:

5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:

6> if the IE "GPS timing of Cell wanted" is set to TRUE:

7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.

7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and

7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".

6> if the IE "GPS timing of Cell wanted" is set to FALSE:

7> include the IE "GPS TOW msec".

5> if the UE does not support the capability to provide the GPS timing of the cell:

6> include the IE "GPS TOW msec".

References

- Conformance requirement 1: TS 24.008 clause 4.5.1.5, TS 22.101 clause 8.
- Conformance requirement 2: TS 33.102, clause 6.4.9.2.
- Conformance requirement 32: TS 24.008, clause 5.2.1.
- Conformance requirement 43: TS 25.331, clause 8.4.1.3.
- Conformance requirement 54: TS 25.331, clause 8.6.7.19.1a.

17.2.2.4.3 Test Purpose

To verify that when an emergency call is initiated by a UE with no USIM, and the network performs a network-induced location request using UE-assisted A-GPS, the UE responds with a Measurement Report containing the IE ìUE positioning GPS measured resultsî.

17.2.2.4.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellites: As specified in 17.2.1.2
- User Equipment:
  - the UE shall be in a state where no assistance data is stored in the UE.
  - the UE is in state "MM idle" with no IMSI and no USIM inserted.

Related PICS/PIXIT Statements

- Emergency speech call yes/no
- UE Assisted Network Assisted GPS

Test procedure

The UE is made to initiate an emergency call. The call is established without authentication and security.

After the call has been through-connected in both directions, the SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message. The assistance data is as specified in section 17.2.1.3.3 (Adequate assistance data for UE-assisted A-GPS). The MEASUREMENT CONTROL message orders periodical reporting.

The UE sends a MEASUREMENT REPORT message including the IE ìUE positioning GPS measured resultsî.

Finally the SS clears the call.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			~~The "emergency number" is entered. Number shall be one programmed in test USIM EF_{ECC} (Emergency Call Codes), ref. 34.108 clause 8.3.2.21.~~ The "emergency number" is entered. One of the following emergency numbers shall be used: 000, 08, 112, 110, 118, 119, 911 or 999.
2	-->			UE establishes RRC procedure for emergency call. Establishment cause: Emergency Call SS checks that the UE capability includes A-GPS UE-assisted positioning measurement.
3	-->		CM SERVICE REQUEST	The CM service type IE indicates "emergency call establishment". The mobile identity IE specifies the IMEI of the UE. The cipher key sequence number IE indicates "no key is available".
4	<--		CM SERVICE ACCEPT	
5	-->		EMERGENCY SETUP	If the Bearer capability IE is not included the default UMTS AMR speech version shall be assumed.
6	<--		CALL PROCEEDING	
7	<--		ALERTING	
8	<--			SS sets up the radio bearer with the rate indicated by the EMERGENCY SETUP message.
9	<--		CONNECT	
10	-->		CONNECT ACKNOWLEDGE	
11	UE			The DTCH is through connected in both directions.
12	<-		MEASUREMENT CONTROL	Assistance data as specified in section 17.2.1.3.3.
13	-->		MEASUREMENT REPORT	UE reports the IE ìUE positioning GPS measured resultsî.
14	<--		DISCONNECT	SS disconnects the call and associated radio bearer.

Specific Message Contents

MEASUREMENT CONTROL (Step 12):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in section 17.2.1.3.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 13):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	UE positioning measured results
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

17.2.2.4.5 Test requirements

After step 10 the UE shall have through connected the DTCH in both directions.

After step 12 the UE shall respond with a MEASUREMENT REPORT message containing the IE ì UE positioning GPS measured resultsî .

[Ö]

17.2.3 Assisted GPS Mobile Originated Tests

17.2.3.1 Void

17.2.3.2 LCS Mobile originated location request/ UE-Based GPS/ Position estimate request/ Success

[Ö]

17.2.3.2.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellites: As specified in 17.2.1.2
- User Equipment:
  - The UE shall begin the test with no GPS assistance data stored.
  - The UE is in state "MM idle" with valid TMSI and CKSN.
  - The UE is in state ì PMM idleî with valid P-TMSI

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS
- Method of clearing stored GPS assistance data
- Method of triggering an MO-LR request for a position estimate.

Test Procedure

The UE invokes call independent supplementary service through a CM SERVICE REQUEST. The SS initiates authentication and ciphering.

Then the UE invokes an MO-LR request of type ì locationEstimateî . The SS orders an A-GPS positioning measurement using three MEASUREMENT CONTROL messages, including assistance data. The UE then initiates periodic measurement reporting. After the first received MEASUREMENT REPORT message, the SS responds with a FACILITY message containing an MO-LR result. When UE receives the FACILITY message, it clears the transaction by sending a RELEASE COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	->			The UE establishes an RRC connection for location service. The SS verifies that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìOriginated High Priority Signallingî.
2	->		CM SERVICE REQUEST	The CM service type IE indicates "call independent supplementary serviceî
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	SS			The SS starts ciphering and integrity protection.
6	->		REGISTER	Call Independent SS containing Facility IE with an LCS MO-LR request of type ìlocationEstimateî.
7	<-		MEASUREMENT CONTROL	
8	<-		MEASUREMENT CONTROL	
9	<-		MEASUREMENT CONTROL	
10	->		MEASUREMENT REPORT	
11	<-		FACILITY	LCS MO-LR result message containing location estimate
12	->		RELEASE COMPLETE	The UE terminates the dialogue

Specific Message Contents

REGISTER (Step 6)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = LCS-MOLR LCS-MOLRArg molr-Type ->locationEstimate
SS version indicator	Value 1 or above

MEASUREMENT CONTROL (Step 7):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the first MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 8):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	Not present
Additional Measurements List	Not present
CHOICE *Measurement type*	
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the second MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 9):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the third MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 10)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	
- CHOICE *Reference time*	
- GPS reference time only	
- GPS TOW msec	Not checked
- CHOICE *Position estimate*	One of ëEllipsoid point with uncertainty Circleí or ëEllipsoid point with uncertainty Ellipseí or ëEllipsoid point with altitude and uncertainty Ellipsoidí
- UE positioning GPS measured results	Not present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

FACILITY (Step 11)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	FACILITY (0x11 1010) Return result = LCS-MOLR LCS-MOLRRes -> locationEstimate

RELEASE COMPLETE (Step 12)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type	RELEASE COMPLETE (0x10 1010)

[Ö]

17.2.3.3 LCS Mobile originated location request/ UE-Based or UE-Assisted GPS/ Assistance data request/ Success

17.2.3.3.1 Definition

This test case applies to all UEs supporting UE-Based or UE-Assisted GPS Location Service capabilities and providing a method to trigger an MO-LR request for assistance data.

17.2.3.3.2 Conformance requirements

1) The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component.

2) The network shall pass the result of the location procedure to the MS by sending a FACILITY message to the MS containing a LCS-MOLR return result component.

3) After the last location request operation the MS shall terminate the dialogue by sending a RELEASE COMPLETE message.

Reference(s):

- Conformance requirements 1, 2 and 3: TS 24.030, subclause 5.1.1

17.2.3.3.3 Test Purpose

To verify the UE behaviour at a mobile originated location request procedure using network-assisted ~~UE based~~ network assisted GPS.

17.2.3.3.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellites: As specified in 17.2.1.2
- User Equipment:
  - The UE shall begin the test with no GPS assistance data stored.
  - The UE is in state "MM idle" with valid TMSI and CKSN.
  - The UE is in state ì PMM idleî with valid P-TMSI

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS
- UE Assisted Network Assisted GPS
- Method of clearing stored GPS assistance data
- Method of triggering an MO-LR request for assistance data.

Test Procedure

The UE invokes call independent supplementary service through a CM SERVICE REQUEST. The SS initiates authentication and ciphering.

Then the UE invokes an MO-LR request of type ìassistanceDataî.

The SS transmits ~~three~~ an ASSISTANCE DATA delivery message~~s~~ with assistance data. When the assistance data delivery was successful, the SS sends a FACILITY message to the UE.

The UE clears the transaction by sending a RELEASE COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	->			The UE establishes an RRC connection for location service. The SS verifies that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìOriginated High Priority Signallingî.
2	->		CM SERVICE REQUEST	The CM service type IE indicates "call independent supplementary serviceî
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	SS			The SS starts ciphering and integrity protection.
6	->		REGISTER	Call Independent SS containing Facility IE with an LCS MO-LR request of type ìassistanceDataî.
7	<-		ASSISTANCE DATA DELIVERY	Assistance data as requested by the UE in step 6.
8	<-		ASSISTANCE DATA DELIVERY	Number of ASSISTANCE DATA DELIVERY
9	<-		ASSISTANCE DATA DELIVERY	Messages may depend on UE request in step 6.
10	<-		FACILITY	
11~~0~~	->		RELEASE COMPLETE	The UE terminates the dialogue
12~~1~~	SS			The SS releases the RRC connection and the test case ends

Specific Message Contents

REGISTER (Step 6)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = LCS-MOLR LCS-MOLRArg molr-Type ->assistanceData locationMethod -> assistedGPS gpsAssistanceData -> OCTET STRING Octets 1 to 38 are coded in the same way as octets 3 to 7+2n of Requested GPS Data IE in 3GPP TS 49.031
SS version indicator	Value 1 or above

ASSISTANCE DATA DELIVERY (Step 7):

Information element	Value/remark
Measurement Information Elements UE positioning OTDOA assistance data for UE-based UE positioning GPS assistance data	Not present ~~Set as specified for the first MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3~~ Set as requested by the UE in step 6.

ASSISTANCE DATA DELIVERY (Step 8):

Information element	Value/remark
Measurement Information Elements UE positioning OTDOA assistance data for UE-based UE positioning GPS assistance data	Not present Set as requested by the UE in step 6.~~Set as specified for the second MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3~~

ASSISTANCE DATA DELIVERY (Step 9):

Information element	Value/remark
Measurement Information Elements UE positioning OTDOA assistance data for UE-based UE positioning GPS assistance data	Not present Set as requested by the UE in step 6.~~Set as specified for the third MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3~~

FACILITY (Step 10)

Information element	**Value/remark**
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	FACILITY (0x11 1010) Return result = LCS-MOLR LCS-MOLRRes -> EMPTY

RELEASE COMPLETE (Step 11)

Information element	**Value/remark**
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type	RELEASE COMPLETE (0x10 1010)

17.2.3.3.5 Test requirements

After step 5 the UE shall transmit a REGISTER message with an LCS MO-LR request with the IE ìMOLR-Typeî set to ìassistanceDataî.

After step 10~~9~~, the UE shall send a RELEASE COMPLETE message.

17.2.3.4 LCS Mobile originated location request/ UE-Assisted GPS/ Position Estimate/ Success

17.2.3.4.1 Definition

This test case applies to all UEs supporting UE-Assisted GPS Location Service capabilities and providing a method to trigger an MO-LR request for a position estimate.

17.2.3.4.2 Conformance requirements

1) The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component.

2) if the IE "Measurement command" has the value "setup":

   2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

   Ö

   2> for any other measurement type:

      3> if the measurement is valid in the current RRC state of the UE:

         4> begin measurements according to the stored control information for this measurement identity.

3) The UE shall:

   1> when a measurement report is triggered:

   2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE_POSITIONING_OTDOA_DATA_UE_ASSISTED in case of OTDOA or one satellite included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:

      3> if the IE "Vertical Accuracy" is included:

         4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.

      3> if the IE "Positioning Methods" is set to "GPS":

         4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:

            5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:

               6> if the IE "GPS timing of Cell wanted" is set to TRUE:

                  7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.

                  7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and

                  7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".

               6> if the IE "GPS timing of Cell wanted" is set to FALSE:

                  7> include the IE "GPS TOW msec".

            5> if the UE does not support the capability to provide the GPS timing of the cell:

               6> include the IE "GPS TOW msec".

4) The network shall pass the result of the location procedure to the MS by sending a FACILITY message to the MS containing a LCS-MOLR return result component.

5) After the last location request operation the MS shall terminate the dialogue by sending a RELEASE COMPLETE message.

References:

- Conformance requirements 1, 4 and 5: TS 24.030, subclause 5.1.1
- Conformance requirement 2: TS 25.331, subclause 8.4.1.3
- Conformance requirement 3: TS 25.331, subclause 8.6.7.19b

17.2.3.4.3 Test Purpose

To verify the UE behaviour in the mobile-originated location request procedure using network-assisted UE-assisted GPS to request a position estimate from the network.

17.2.3.4.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellites: As specified in 17.2.1.2
- User Equipment:
  - The UE shall begin the test with no GPS assistance data stored.
  - The UE is in state "MM idle" with valid TMSI and CKSN.
  - The UE is in state ì PMM idleî with valid P-TMSI

Related PICS/PIXIT Statements

- UE Assisted Network Assisted GPS
- Method of clearing stored GPS assistance data
- Method of triggering an MO-LR request for a position estimate.

Test Procedure

The UE invokes call independent supplementary service through a CM SERVICE REQUEST. The SS initiates authentication and ciphering.

The UE invokes an MO-LR request through the Facility IE in a REGISTER message. The MO-LR request if of type ì locationEstimateî .

The SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message, including assistance data. The UE then initiates periodic measurement reporting. After receiving the MEASUREMENT REPORT message, the SS responds with a FACILITY message containing an MO-LR result. When UE receives the FACILITY message, it clears the transaction by sending a RELEASE COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	->			The UE establishes an RRC connection for location service. The SS verifies that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìOriginated High Priority Signallingî.
2	->		CM SERVICE REQUEST	The CM service type IE indicates "call independent supplementary serviceî
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	SS			The SS starts ciphering and integrity protection.
6	->		REGISTER	Call Independent SS containing Facility IE with an LCS MO-LR request. The IE ìMOLR-Typeî is set to ìlocationEstimateî.
7	<-		MEASUREMENT CONTROL	
8	->		MEASUREMENT REPORT	
9	<-		FACILITY	LCS MO-LR result message containing location estimate
10	->		RELEASE COMPLETE	The UE terminates the dialogue
11	SS			The SS releases the RRC connection and the test case ends

Specific Message Contents

REGISTER (Step 6)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = ~~lcs~~LCS-MOLR LCS-MOLRArg ~~MOLR~~molr-Type ->~~=~~ locationEstimate
SS version indicator	Value 1 or above

MEASUREMENT CONTROL (Step 7):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria

- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 8)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

FACILITY (Step 9)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	FACILITY (0x11 1010) Return result = LCS-MOLR LCS-MOLRRes -> locationEstimate

RELEASE COMPLETE (Step 10)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type	RELEASE COMPLETE (0x10 1010)

17.2.3.4.5 Test requirements

After step 5 the UE shall transmit a REGISTER message with an LCS MO-LR request with the IE ìMOLR-Typeî set to ìlocationEstimateî.

After step 7, the UE shall respond with a MEASUREMENT REPORT message containing the IE ìUE positioning GPS measured resultsî.

After step 9, the UE shall send a RELEASE COMPLETE message.

17.2.3.5 Void ~~LCS Mobile originated location request/ UE-Assisted GPS/ Assistance Data Only/ Success~~

~~17.2.3.5.1 Definition~~

~~This test case applies to all UEs supporting UE-Assisted GPS Location Service capabilities and providing a method to trigger an MO-LR request for assistance data.~~

~~17.2.3.5.2 Conformance requirements~~

~~1) The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component.~~

~~2) Upon reception of a ASSISTANCE DATA DELIVERY message the UE shall:~~

~~1> if IE "UE positioning OTDOA assistance data for UE-based" is included:~~

~~2> act as specified in subclause 8.6.7.19.2a.~~

~~1> if IE "UE positioning GPS assistance data" is included:~~

~~2> act as specified in subclause 8.6.7.19.3.~~

~~3) The network shall pass the result of the location procedure to the MS by sending a FACILITY message to the MS containing a LCS-MOLR return result component.~~

~~4) After the last location request operation the MS shall terminate the dialogue by sending a RELEASE COMPLETE message.~~

~~Conformance requirements 1, 3 and 4: TS 24.030, subclause 5.1.1~~

~~Conformance requirement 2: TS 25.331, subclause 8.4.3.3~~

~~17.2.3.5.3 Test Purpose~~

~~To verify the UE behaviour in the mobile-originated location request procedure using network-assisted UE-assisted GPS to request assistance data from the network.~~

~~17.2.3.5.4 Method of Test~~

~~Initial Conditions~~

~~System Simulator:~~

~~1 cell, default parameters.~~

~~Satellites: As specified in 17.2.1.2~~

~~User Equipment:~~

~~The UE shall begin the test with no GPS assistance data stored.~~

~~The UE is in state "MM idle" with valid TMSI and CKSN.~~

~~The UE is in state ìPMM idleî with valid P-TMSI~~

~~Related PICS/PIXIT Statements~~

~~- UE Assisted Network Assisted GPS~~

~~Method of clearing stored GPS assistance data~~

~~Method of triggering an MO-LR request for assistance data.~~

~~Test Procedure~~

~~The UE invokes call independent supplementary service through a CM SERVICE REQUEST. The SS initiates authentication and ciphering.~~

~~The UE invokes an MO-LR request through the Facility IE in a REGISTER message. The type of the MO-LR request is set to ìassistanceDataî.~~

~~The SS transmits an ASSISTANCE DATA delivery message with assistance data. The UE clears the transaction by sending a RELEASE COMPLETE message.~~

~~Expected Sequence~~

Step	Direction		Message	Comments
	UE	SS		
1	->			The UE establishes an RRC connection for location service. The SS verifies that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìOriginated High Priority Signallingî.
2	->		CM SERVICE REQUEST	The CM service type IE indicates ìcall independent supplementary serviceî.
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	SS			The SS starts ciphering and integrity protection.
6	->		REGISTER	Call Independent SS containing Facility IE with an LCS MO-LR request. The IE ìMOLR-Typeî is set to ìassistanceDataî.
7	<-		ASSISTANCE DATA DELIVERY	Assistance data as requested by the UE in step 6.
8	->		RELEASE COMPLETE	The UE terminates the dialogue
9	SS			The SS releases the RRC connection and the test case ends

Specific Message Contents

REGISTER (Step 6):

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = lcs-MOLR MOLR-Type = assistanceData

ASSISTANCE DATA DELIVERY (Step 7):

Information element	Value/remark
Measurement Information Elements	
UE positioning OTDOA assistance data for UE-based	Not present
UE positioning GPS assistance data	Set as requested by the UE in step 6.

17.2.3.5.5 Test requirements

After step 5 the UE shall transmit a REGISTER message with an LCS MO-LR request with the IE ìMOLR-Typeî set to ìassistanceDataî.

~~After step 9, the UE shall send a RELEASE COMPLETE message.~~

3GPP TSG-T WG1 Meeting #25
Malta, 1-5 Nov, 2004

T1-041632
Agenda 8.8.3

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **978** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to low priority RRC test case 8.3.2.5
Source:	⌘	Motorola and MCC 160
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	F
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In expected sequence steps 4, 7 and 8, when URA UPDATE CONFIRM is being sent with U-RNTI, UE is expected to reply with UTRAN MOBILITY INFORMATION CONFIRM, but to send this message on RACH UE needs a C_RNTI. Hence, new C-RNTI also needs to be allocated in steps 4, 7 and 8. As new UE ID is being allocated to UE in step 4, 7 and 8, a real network will send these messages on DCCH, with Ciphering enabled.
Summary of change:	⌘	Test procedure updated for transmission of URA UPDATE CONFIRM message on DCCH in steps 4, 7 and 8 New C-RNTI added in specific message contents of URA UPDATE CONFIRM message in steps 4 , 7 and 8,
Consequences if not approved:	⌘	Test may fail a conformant UE.

Clauses affected:	⌘	8.3.2.5

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Affects R99, REL-4, REL-5.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.2.5 URA Update: Success after Confirmation error of URA-ID list

8.3.2.5.1 Definition

8.3.2.5.2 Conformance requirement

The UE shall:

1> if the IE "URA identity" is included in a received message:

2> if the IE "RRC State Indicator" is included and set to "URA_PCH":

3> store this URA identity in the variable URA_IDENTITY;

3> after sending a possible message to UTRAN and entering URA_PCH state as specified elsewhere, read system information block type 2 in the selected cell;

3> if the stored URA identity in the variable URA_IDENTITY is not included in the list of URA identities in System Information Block type 2 in the selected cell, the list of URA identities in system information block type 2 is empty or if the system information block type 2 can not be found, a confirmation error of URA identity list has occurred:

4> if no URA update procedure is ongoing:

Ö

4> if a URA update procedure is ongoing:

5> take actions as specified in TS 25.331 subclause 8.3.1.10.

If the URA UPDATE CONFIRM message causes a confirmation error of URA identity list as specified in TS 25.331 subclause 8.6.2.1 the UE shall:

1> check the value of V302; and

1> if V302 is smaller or equal than N302:

2> set the IEs in the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the URA UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

Ö

Reference

3GPP TS 25.331 clause 8.3.1.10, 8.6.2.1.

8.3.2.5.3 Test purpose

1. To confirm that the UE retries to perform the URA update procedure following a confirmation error of URA-ID list.

8.3.2.5.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108.

Test Procedure

At the start of this test, the UE is brought to URA_PCH state and assigned a URA with URA-ID 1. When the UE detects the expiry of timer T305 according to the system information, the UE moves to CELL_FACH state and transmits a URA UPDATE message to the SS on the uplink CCCH. The reason for performing URA updating shall be set to "periodic URA update" in IE "URA update cause". After the SS receives this message, it transmits a URA UPDATE CONFIRM message which includes the IE "RRC state indicator" set to "URA_PCH" and IE "URA identity" set to "URA-ID 2" to the UE on the downlink ~~CCCH~~DCCH. The UE finds that the indicated URA-ID is not included in the list of URA-IDs broadcasted in system information block type 2, and then the UE shall retry to transmit a URA UPDATE message, with "change of URA" set in IE "URA update cause", for a confirmation error of URA-ID list. SS continue to send the same URA UPDATE CONFIRM message on the downlink ~~CCCH~~ DCCH until N302+1 URA UPDATE messages have been received. Then SS transmits a URA UPDATE CONFIRM message to the UE which includes IE "URA Identity" set to "URA-ID 1" and IE "new U-RNTI" on the downlink ~~CCCH~~DCCH. The UE shall find this URA-ID in its URA-ID list and transmits an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is URA_PCH state. SS initializes counter K to 0
2	→		URA UPDATE	This message shall contain value "periodic URA update" set in IE "URA update cause" after expiry of timer T305.
3			Void	
4	←		URA UPDATE CONFIRM	SS transmits this message, setting the value "URA-ID 2" to IE "URA Identity", and including ìNew U_RNTIî.
4a	→		UTRAN MOBILITY INFORMATION CONFIRM	
5	→		URA UPDATE	This message shall contain value "change of URA" set in IE "URA update cause"
6				SS increments K by 1. If K is not greater than N302, proceed to step 7. If K is greater than N302, SS proceeds to step 8.
7	←		URA UPDATE CONFIRM	SS transmits this message, setting the value "URA-ID 2" to IE "URA Identity"", and including ìNew U_RNTIî.. And then returns to step 4a.
8	←		URA UPDATE CONFIRM	SS transmits this message, setting IE "URA Identity" to "URA-ID 1". This message also comprises IE "New U-RNTI".
9	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

URA UPDATE (Step 2)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
URA Update Cause	Check to see if set to 'Periodic URA update'

URA UPDATE CONFIRM (Step 4 &7)

Use the same message sub-type as specified in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
-SRNC Identity	'0000 0000 0001'
-S-RNTI	'0000 0000 0000 0000 0101'
New C-RNTI	ë1010 1010 1010 1010í B
URA Identity	2

URA UPDATE (Step 5)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0101'
URA Update Cause	Check to see if set to ëURA update causeí

URA UPDATE CONFIRM (Step 8)

Use the same message sub-type as specified in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
-SRNC Identity	'0000 0000 0001'
-S-RNTI	'0000 0000 0000 0101 0101'
New C-RNTI	ë1010 1010 1010 0000í B
URA Identity	1

UTRAN MOBILITY INFORMATION CONFIRM (Step 4a & 9)

Only the message type IE in this message is checked.

8.3.2.5.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, move to CELL_FACH state, transmit a URA UPDATE message on the uplink CCCH and set value "periodic URA update" into IE "URA update cause".

After step 4 the UE shall re-transmit a URA UPDATE message with IE "URA update cause" set to "change of URA" after it detects a confirmation error of URA-ID list for the URA-ID indicated in the URA UPDATE CONFIRM message. A total of (N302+1) URA UPDATE messages shall be received by the SS.

After step 8 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

3GPP TSG-T1 Meeting #25
Malta, 1st-5th November 2004

Tdoc ⌘T1-041634

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 979 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to package 2 GMM approved test case 12.4.2.2
Source:	⌘	Racal Instruments Wireless Solutions, an Aeroflex Company
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	As per the test procedure and the expected sequence (step 6) the UE initiates a CS call, which should be MO call, but the TTCN implements MT call. This change is to match the prose with the TTCN implementation without affecting the test purpose.
Summary of change:	⌘	In section 12.4.2.2.4 the test procedure is changed from MO call to MT call.
Consequences if not approved:	⌘	Prose and TTCN will not be aligned.

Clauses affected:	⌘	12.4.2.2

Other specs affected: ⌘

Y	N	
	X	Other core specifications
	X	Test specifications
	X	O&M Specifications

⌘

Other comments: ⌘ This CR does not affect the TTCN implementation.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of Modification>

12.4.2.2 Combined routing area updating / UE in CS operation at change of RA

12.4.2.2.1 Definition

12.4.2.2.2 Conformance requirement

PS UE in UE operation mode A that is in an ongoing CS transaction at change of routing area shall initiate the normal routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.1

12.4.2.2.3 Test purpose

To test the behaviour of the UE if the routing area is changed during an ongoing circuit switched transmission.

12.4.2.2.4 Method of test

Initial condition

System Simulator:

One cell, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) is operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
Switch off on button	Yes/No
Automatic PS attach procedure at switch on or power on	Yes/No

Test procedure

A combined PS attach procedure is performed. ~~The UE in UE operation mode A initiates a CS call~~SS Initiates a CS call with UE in UE Operation Mode A. The routing area change. The UE will perform the normal routing area updating procedure during the ongoing circuit-switched transaction.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1				Set the cell type of cell A to the "Serving cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6	~~UE~~SS			A CS call is initiated.
7			Void	
8			Void	
8a	<-		UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code.
8b	->		UTRAN MOBILITY INFORMATION CONFIRM	
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
9a		SS		The SS starts integrity protection.
10	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
11	->		ROUTING AREA UPDATE COMPLETE	
11a		SS		The SS releases the PS signalling connection, but keeps the RRC connection.
12	<-		PAGING TYPE2	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	->		SERVICE REQUEST	service type = "paging response"
13a		SS		The SS starts integrity protection.
13b		SS		The SS releases the CS call.
14		SS		The SS initiates the RRC connection release.
14a	->		ROUTING AREA UPDATE REQUEST	Update type = ìcombined RA/LA updatingî or "combined RA/LA updating with IMSI Attach", P-TMSI-1 signature, Routing area identity = RAI-4, TMSI status = no valid TMSI available
14b		SS		The SS starts integrity protection.
14c	<-		ROUTING AREA UPDATE ACCEPT	Update result = "combined RA/LA updated", No P-TMSI, P-TMSI-3 signature, Routing area identity = RAI-1

15	UE		The UE is switched off or power is removed (see ICS).
15a	SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
16	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
17	SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

UTRAN MOBILITY INFORMATION (step 8a)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	30
- ATT	1
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	0 (Network Mode of Operation I)
- CN domain specific DRX cycle length coefficient	7

12.4.2.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE has received the new RAI from the SS in the UTRAN MOBILITY INFORMATION message, the UE shall:

- initiate the normal routing area updating procedure.

<End of Modification>

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st - 5th Nov 2004

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CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **979** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RRC test case 8.3.2.13
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
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Use one of the following releases:
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R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Once the SS power is changed to T2 in step 7, the UE should not reselect to Cell2 immediately, Cell 2 will have a better ranking only after the expiry of penalty time. Therefore reselection should take place after the penalty time has expired.
Summary of change:	⌘	Added clarification in Test procedure and the expected sequence to take into account the penalty time expiry.
Consequences if not approved:	⌘	The test case will fail a conformant UE.

Clauses affected:	⌘	8.3.2.13.4

		Y	N		
Other specs Affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	This change aligns the TTCN with the prose.

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Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

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8.3.2.13 URA Update: Change of URA due to HCS Cell Reselection

8.3.2.13.1 Definition

8.3.2.13.2 Conformance requirement

1. The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is defined by:

$$H_s = Q_{meas,s} - Qhcs_s$$

$$H_n = Q_{meas,n} - Qhcs_n \tilde{n} TO_n * L_n$$

Ö

2. The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} - TO_n * (1 \tilde{n} L_n)$$

where:

$$TO_n = TEMP\_OFFSET_n * W(PENALTY\_TIME_n \tilde{n} T_n)$$

$L_n = 0$ if $HCS\_PRIO_n = HCS\_PRIO_s$
$L_n = 1$ if $HCS\_PRIO_n <> HCS\_PRIO_s$

$W(x) = 0$ for $x < 0$
$W(x) = 1$ for $x >= 0$

$TEMP\_OFFSET_n$ applies an offset to the H and R criteria for the duration of $PENALTY\_TIME_n$ after a timer T_n has started for that neighbouring cell.

The timer T_n is implemented for each neighbouring cell. T_n shall be started from zero when one of the following conditions becomes true:

- if $HCS\_PRIO_n <> HCS\_PRIO_s$ and

$$Q_{meas,n} > Qhcs_n$$

Or

- if $HCS\_PRIO_n = HCS\_PRIO_s$ and
  - for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH RSCP in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

- for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH Ec/No in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset2_{s,n}$$

- for all other serving and neighbour cells:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

T_n for the associated neighbour cell shall be stopped as soon as any of the above conditions are no longer fulfilled. Any value calculated for TO_n is valid only if the associated timer T_n is still running else TO_n shall be set to zero.

At cell-reselection, a timer T_n is stopped only if the corresponding cell is not a neighbour cell of the new serving cell, or if the criteria given above for starting timer T_n for the corresponding cell is no longer fulfilled with the parameters of the new serving cell. On cell re-selection, timer T_n shall be continued to be run for the corresponding cells but the criteria given above shall be evaluated with parameters broadcast in the new serving cell if the corresponding cells are neighbours of the new serving cell.

Ö

3. The cell selection criterion S used for cell reselection is fulfilled when:

for FDD cells:	Srxlev > 0 AND Squal > 0
for TDD cells:	Srxlev > 0
for GSM cells:	Srxlev > 0

Where :

Squal = $Q_{qualmeas}$ ñ Qqualmin

Srxlev = $Q_{rxlevmeas}$ - Qrxlevmin - Pcompensation

Ö

4. The UE shall perform ranking of all cells that fulfil the S criterion among

- all cells that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0**.** Note that this rule is not valid when UE high-mobility is detected.
- all cells, not considering HCS priority levels, if no cell fulfil the criterion H >= 0. This case is also valid when it is indicated in system information that HCS is not used, that is when serving cell does not belong to a hierarchical cell structure.

The cells shall be ranked according to the R criteria.

The best ranked cell is the cell with the highest R value.

5. If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.

- more than 1 second has elapsed since the UE camped on the current serving cell.

Ö

6. The *cell reselection* process in Connected Mode is the same as *cell reselection evaluation process* used for idle mode, described in subclause 5.2.6 of 25.304.

7. A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

1> URA reselection:

2> if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or

Ö

3> perform URA update using the cause "change of URA".

Reference

3GPP TS 25.304 clause 5.2.6.1.4

3GPP TS 25.304 clause 5.4.3

3GPP TS 25.331 clause 8.3.1

8.3.2.13.3 Test purpose

1. To confirm that the UE can read HCS related SIB information and act upon all HCS parameters in URA_PCH state.

2. To confirm that the UE executes an URA update procedure after the successful change of URA due to HCS Cell Reselection in URA_PCH state.

3. To confirm UE responds correctly when it re-selects to a new cell while waiting from URA UPDATE CONFIRM message from SS.

8.3.2.13.4 Method of test

Initial Condition

System Simulator: 3 cells - Cell 1 is active with URA-ID 1 and downlink transmission power shown in column marked "T0" in table 8.3.2.13-1. Cell2 with URA-ID 1 andCell 3 with URA-ID 2 are switched off

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE, with URA-ID 1 from the list of URA-ID in cell 1

Specific Message Content

For system information blocks 4 and 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

Contents of System Information Block type 4 (FDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	35 dB
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	Not Present
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- $Qhyst1_s$	10 (gives actual value of 20 dB)
- $Qhyst2_s$	0 dB
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	39 (results in actual value of ñ76)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD and 1.28 Mcps TDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- SsearchHCS	47 dB
- $Qhyst1_s$	10 (gives actual value of 20 dB)
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	39 (results in actual value of ñ76)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- Intra-frequency cell id	3
- Cell info	
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm

Contents of System Information Block type 11 (3.84 Mcps TDD and 1.28 Mcps TDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0dB
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0dB
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm

Test Procedure

Table 8.3.2.13-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
Cell id in system information		1			2			3		
UTRA RF Channel Number		Ch. 1			Ch. 1			Ch. 1		
HCS Priority		6			7			7		
CPICH Ec (FDD)	dBm /3.84 MHz	-60	-60	-60	-80	-80	-70	-80	-70	-73
H* (During penalty time)		16	16	4	-4	-4	6	-4	-6	3
H* (After PenaltyTime)		16	16	16	-4	-4	6	-4	6	3
P-CCPCH RSCP (TDD)	dBm	-61	-61	-61	-80	-80	-67	-80	-73	-73
H* (After PenaltyTime)		15	15	15	-4	-4	9	-4	3	3
R* (After PenaltyTime)		-41	-41	-41	-60	-60	-47	-60	-53	-53

* this parameter is calculated internally in the UE and is only shown for clarification of the test procedure.

The UE is in the URA_PCH state and assigned with only 1 URA identity in cell 1: URA-ID 1. SS configures Cell 2 and 3 with power level given in column "T0", and URA-Id 1 and 2 respectively and starts broadcast of BCCH on the primary CCPCH in cells 2 and 3. UE shall remain camped on the Cell 1 even after expiry of penalty time i.e. 40 seconds. SS sets downlink transmission power settings according to columns "T1" in table 8.3.2.13-1. SS then adjusts the transmission power again according to 'T1' column. This is expected to cause the UE to perform a cell reselection to cell 3 after at-least 40 Seconds (Penalty Time) after the power levels have been changed. UE on performing cell reselection to cell 3 finds that its current URA-ID 1 is not in the new broadcasted list of URA-IDs, it moves to CELL_FACH state and transmits a URA UPDATE message on the uplink CCCH. After the SS receives this message, it transmits URA UPDATE CONFIRM message to the UE on the downlink CCCH. The "RRC State Indicator" is set to "URA_PCH". UE returns to URA_PCH state in cell 3 without sending a uplink response message. Next SS adjusts the transmission power according to 'T2' column. After the expiry of penalty time the UE shall re-select to cell 2, and transmit URA UPDATE message to SS. However, SS do not acknowledge but adjusts the transmission power according to 'T0' column. UE shall perform cell re-selection to cell 1 and then sent URA UPDATE message to SS. Finally SS shall transmit URA UPDATE CONFIRM message to UE on the downlink CCCH. UE shall return to URA_PCH state in Cell 1 and will not transmit anything on PRACH.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is updated with only 1 URA identity carried currently by cell 1. The starting state of the UE is URA_PCH
2	←		BCCH	SS configures cell 2 (with URA-ID 1) and Cell 3 (with URA-ID 2) and power levels as given in column T0 of table 8.3.2.13-1 and starts transmission of BCCH.
3				UE shall Remain camped on Cell 1 and in URA_PCH state even after expiry of Penalty time.
4				SS set the power transmission of all cells according to column 'T1' of table 8.3.2.13-1.
5	→		URA UPDATE	The UE shall perform a cell reselection first after the penalty time to cell 3 and when it finds that its current URA-ID 1 is not in the new broadcasted list of URA-IDs, it shall then transmit this message and set value "change of URA" into IE "URA update cause".
6	←		URA UPDATE CONFIRM	Message sent on CCCH.
7				SS set the power transmission of all cells according to column 'T2' of table 8.3.2.13-1. SS makes sure that the UE does not send an URA Update message during penalty time
8	→		URA UPDATE	In Cell 2
9				SS do not respond to the URA UPDATE message from UE and set the power transmission of all cells according to column 'T0' of table 8.3.2.13-1.
10	→		URA UPDATE	In Cell 1
11	←		URA UPDATE CONFIRM	Message sent on CCCH.

Specific Message Contents

The contents of system information block 4 and 11 messages are identical as system information block 4 and 11 messages as found in 34.108 clause 6.1 with the following exceptions:

Contents of System Information Block type 4 (FDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	35 dB
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	Not Present
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- $Qhyst1_s$	10 (gives actual value of 20 dB)
- $Qhyst2_s$	0 dB
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	39 (results in actual value of ñ76)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD and 1.28 Mcps TDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- SsearchHCS	47 dB
- $Qhyst1_s$	10 (gives actual value of 20 dB)
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	39 (results in actual value of ñ76)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell Selection and Re-selection info	
- Qoffset1$_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- Intra-frequency cell id	3
- Cell info	
- Cell Selection and Re-selection info	
- Qoffset1$_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm

Contents of System Information Block type 11 (3.84 Mcps TDD and 1.28 Mcps TDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0dB
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0dB
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm

Contents of System Information Block type 11 (FDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell Selection and Re-selection info	
- Qoffset1$_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qrxlevmin	-115 dBm
- Intra-frequency cell id	1
- Cell info	
- Cell Selection and Re-selection info	
- Qoffset1$_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm

Contents of System Information Block type 11 (3.84 Mcps TDD and 1.28 Mcps TDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0dB
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0dB
- Reference time difference to cell	Not Present
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1 Default settings for cell
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	39 (results in actual value of ñ76)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	12
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm

URA UPDATE (Step 5, 8 and 10)

Information Element	Value/remark
URA Update Cause	Check to see if set to 'change of URA'

URA UPDATE CONFIRM (Steps 6 and 11)

Use the same message sub-type found in TS 34.108 clause 9.

8.3.2.13.5 Test requirement

After step 4 the UE shall find that URA-ID 2 is not in its maintained list of URA-IDs. After cell reselection, the UE shall move to CELL_FACH state and transmit URA UPDATE message setting value "change of URA" into IE "URA update cause".

After step 7 the UE shall find that URA-ID 1 is not in its maintained list of URA-IDs. After cell reselection, the UE shall move to CELL_FACH state and transmit URA UPDATE message setting value "change of URA" into IE "URA update cause".

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st - 5th Nov 2004

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CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **980** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RRC test case 8.3.1.24
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘

1.The R value for Cell 2 at T2 during penalty time is not correct. The R value must be ñInf based on the following calculation

At T2 Cell B is the neighbour Cell (-70dBm)
==========

During Penalty time

Rn = Qmeas - Qoffset- T0n (1-Ln)
Ln =0 (Priority for the serving Cell Cell C and Cell B are the same=7)

T0n = Temp_Offset = Inf
Therefore Rn = Qmeas -Qoffset - Inf = -Inf

2. Once the SS power is changed to T2 in step 7, the UE should not reselect to Cell2 immediately, Cell 2 will have a better ranking only after the expiry of penalty time. Therefore reselection should take place after the penalty time has expired.

Summary of change: ⌘

1. Corrected table 8.3.1.24-1 with the correct R value
2. Added clarification in Test procedure and the expected sequence to take into account the penalty time expiry.

Consequences if not approved: ⌘ The test case will fail a conformant UE.

Clauses affected:	⌘	8.3.1.24.4			
		Y	**N**		
Other specs Affected:	⌘		**X**	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	This change aligns the TTCN with the prose.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.1.24 Cell Update: HCS cell reselection in CELL_PCH

8.3.1.24.1 Definition

8.3.1.24.2 Conformance requirement

1. The quality level threshold criterion H for hierarchical cell structures is used to determine whether prioritised ranking according to hierarchical cell re-selection rules shall apply, and is defined by:

$$H_s = Q_{meas,s} - Qhcs_s$$

$$H_n = Q_{meas,n} - Qhcs_n \tilde{n} TO_n * L_n$$

Ö

2. The cell-ranking criterion R is defined by:

$$R_s = Q_{meas,s} + Qhyst_s$$

$$R_n = Q_{meas,n} - Qoffset_{s,n} - TO_n * (1 \tilde{n} L_n)$$

where:

$$TO_n = TEMP\_OFFSET_n * W(PENALTY\_TIME_n \tilde{n} T_n)$$

$L_n = 0$ if $HCS\_PRIO_n = HCS\_PRIO_s$
$L_n = 1$ if $HCS\_PRIO_n <> HCS\_PRIO_s$

$W(x) = 0$ for $x < 0$
$W(x) = 1$ for $x >= 0$

$TEMP\_OFFSET_n$ applies an offset to the H and R criteria for the duration of $PENALTY\_TIME_n$ after a timer T_n has started for that neighbouring cell.

The timer T_n is implemented for each neighbouring cell. T_n shall be started from zero when one of the following conditions becomes true:

- if $HCS\_PRIO_n <> HCS\_PRIO_s$ and

$$Q_{meas,n} > Qhcs_n$$

Or

- if $HCS\_PRIO_n = HCS\_PRIO_s$ and
  - for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH RSCP in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

- for serving FDD and neighbour FDD cells if the quality measure for cell selection and reselection is set to CPICH Ec/No in the serving cell, and:

$$Q_{meas,n} > Q_{meas,s} + Qoffset2_{s,n}$$

- for all other serving and neighbour cells:

$$Q_{meas,n} > Q_{meas,s} + Qoffset1_{s,n}$$

T_n for the associated neighbour cell shall be stopped as soon as any of the above conditions are no longer fulfilled. Any value calculated for TO_n is valid only if the associated timer T_n is still running else TO_n shall be set to zero.

At cell-reselection, a timer T_n is stopped only if the corresponding cell is not a neighbour cell of the new serving cell, or if the criteria given above for starting timer T_n for the corresponding cell is no longer fulfilled with the parameters of the new serving cell. On cell re-selection, timer T_n shall be continued to be run for the corresponding cells but the criteria given above shall be evaluated with parameters broadcast in the new serving cell if the corresponding cells are neighbours of the new serving cell.

Ö

3. The cell selection criterion S used for cell reselection is fulfilled when:

for FDD cells:	Srxlev > 0 AND Squal > 0
for TDD cells:	Srxlev > 0
for GSM cells:	Srxlev > 0

Where :

$$Squal = Q_{qualmeas} \text{ ñ } Qqualmin$$

$$Srxlev = Q_{rxlevmeas} - Qrxlevmin - Pcompensation$$

Ö

4. The UE shall perform ranking of all cells that fulfil the S criterion among

- all cells that have the highest HCS_PRIO among those cells that fulfil the criterion H >= 0**.** Note that this rule is not valid when UE high-mobility is detected.
- all cells, not considering HCS priority levels, if no cell fulfil the criterion H >= 0. This case is also valid when it is indicated in system information that HCS is not used, that is when serving cell does not belong to a hierarchical cell structure.

The cells shall be ranked according to the R criteria.

The best ranked cell is the cell with the highest R value.

5. If an FDD cell is ranked as the best cell and the quality measure for cell selection and re-selection is set to CPICH RSCP, the UE shall perform cell re-selection to that FDD cell.

In all cases, the UE shall reselect the new cell, only if the following conditions are met:

- the new cell is better ranked than the serving cell during a time interval Treselection.

- more than 1 second has elapsed since the UE camped on the current serving cell.

Ö

6. The *cell reselection* process in Connected Mode is the same as *cell reselection evaluation process* used for idle mode, described in subclause 5.2.6 of 25.304.

7. A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

Ö

1> Paging response:

Ö

1> Radio link failure:

Ö

1> Re-entering service area:

Ö

1> RLC unrecoverable error:

Ö

1> Cell reselection:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

3> if the UE is in CELL_FACH or CELL_PCH state and the UE performs cell re-selection; or

3> if the UE is in CELL_FACH state and the variable C_RNTI is empty:

4> perform cell update using the cause "cell reselection".

Reference

3GPP TS 25.304 clause 5.2.6.1.4

3GPP TS 25.304 clause 5.4.3

3GPP TS 25.331 clause 8.3.1

8.3.1.24.3 Test purpose

1. To confirm that the UE can read HCS related SIB information and act upon all HCS parameters in CELL_PCH state.

2. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell in CELL_PCH state.

3. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection.

8.3.1.24.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1 is active with downlink transmission power shown in Column To in table 8.3.1.24-1. Cell 2 and 3 are switched off.

UE: CELL_PCH (state 6-12) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Specific Message Content

For system information blocks 4 and 11 for Cell 1 (gives IE's which are different from defaults given in 34.108 sec 6.1) to be transmitted before idle update preamble.

Contents of System Information Block type 4 (FDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	35 dB
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	Not Present
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- $Qhyst1_s$	5 (gives actual value of 10 dB)
- $Qhyst2_s$	0 dB
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	40 (results in actual value of ñ75)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD and 1.28 Mcps TDD)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- SsearchHCS	47 dB
- RAT List	This parameter is configurable
- Qrxlevmin	-103 dBm
- $Qhyst1_s$	5 (gives actual value of 1 dB)
- HCS Serving cell information	
-HCS Priority	6
- Q HCS	40 (results in actual value of ñ75)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm

Contents of System Information Block type 11 (3.84 Mcps TDD and 1.28 Mcps TDD) (Cell 1)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- Qoffset1$_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- Qoffset1$_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm

Test Procedure

Table 8.3.1.24-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
Cell id in system information		1			2			3		
UTRA RF Channel Number		Ch. 1			Ch. 1			Ch. 1		
HCS Priority		6			7			7		
CPICH Ec (FDD)	dBm/ 3.84 MHz	-60	-60	-60	-80	-80	-70	-80	-70	-70
P-CCPCH RSCP (TDD)	dBm	-61	-61	-61	-80	-80	-67	-80	-73	-73
H* (During penalty time)		15	15	5	-inf	-inf	5	-inf	-inf	5
H* (After PenaltyTime)		15	15	15	-5	-5	5	-5	5	5
R* (During PenaltyTime)		n.a.	n.a.	n.a.	n.a.	n.a.	-inf ~~-50~~	n.a.	n.a.	-60
R* (After PenaltyTime)		n.a.	n.a.	n.a.	n.a.	n.a.	-50	n.a.	n.a.	-60

* this parameter is calculated internally in the UE and is only shown for clarification of the test procedure.

The UE is in the CELL_PCH state, camping onto cell 1. SS configures Cell 2 and 3 with power levels given in column "TO" and starts to broadcast BCCH on the primary CCPCH in cell 2 & 3. UE shall remain camped on the Cell 1 even after expiry of penalty time i.e. 40 seconds. SS sets downlink transmission power settings according to columns "T1" in table 8.3.1.24-1. The UE shall find cell 3 to be more suitable for service and hence perform a cell reselection to cell 3 after at-least 40 Seconds (Penalty Time) after the power levels have been changed. After the completion of cell reselection, the UE shall move to CELL_FACH state and transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 3 and set IE "Cell update cause" to "Cell Reselection". After SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_PCH", to the UE on the downlink CCCH. UE shall return to CELL_PCH state in Cell 3 and will not transmit anything on PRACH. SS then sets downlink transmission power settings according to columns "T2" in table 8.3.1.24-1. The UE shall find cell 2 to be more suitable for service after the expiry of penalty time and hence perform a cell reselection to cell 2 after the power levels have been changed. After the completion of cell reselection, the UE shall move to CELL_FACH state and transmit a CELL UPDATE message to the SS on the uplink CCCH of cell 2 and set IE "Cell update cause" to "Cell Reselection". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message, which includes the IE "RRC State Indicator" set to "CELL_PCH", to the UE on the downlink DCCH. UE shall return to CELL_PCH state in Cell 2 and will not transmit anything on PRACH.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_PCH state in cell 1
2	←		BCCH	SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.24-1. The SS starts to broadcast BCCH on the primary CCPCH in cell 2 and Cell 3. The UE shall still find Cell 1 best for service even after penalty time of 40 seconds, and shall remain in Cell 1 in CELL_PCH State
3				SS changes the power levels as per column 'T1' in the table 8.3.1.24-1. For the time equal to Penalty time 40 Seconds, after the change in power levels, the UE shall still find Cell 1 as best for service and remain in cell 1. After Penalty time of 40 Seconds, UE shall find Cell 3 better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 3.
4	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection". Received in Cell 3
5	←		CELL UPDATE CONFIRM	Message sent on CCCH with IE "RRC State Indicator" is set to "CELL_ PCH".
7				SS changes the power levels as per column 'T2' in the table 8.3.1.24-1. SS Checks that no cell update message is received during penalty time as the UE shall find Cell 2 better for service and perform a reselection after the expiry of penalty time. SS waits for the maximum duration required for the UE to camp to cell 2.
8	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection". Received in Cell 2
9	←		CELL UPDATE CONFIRM	Message sent on DCCH with IE "RRC State Indicator" is set to "CELL_PCH".

Specific Message Contents

The contents of system information block 4 and 11 messages are identical as system information block 4 and 11 messages as found in 34.108 clause 6.1 with the following exceptions:

Contents of System Information Block type 4 (FDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	FDD
- Sintersearch	0 dB
- SsearchHCS	35 dB
- RAT List	This parameter is configurable
- $S_{limit,SearchRAT}$	Not Present
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- $Qhyst1_s$	5 (gives actual value of 10 dB)
- $Qhyst2_s$	0 dB
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	40 (results in actual value of ñ75)
- TcrMax	Not Present

Contents of System Information Block type 4 (3.84 Mcps TDD and 1.28 Mcps TDD) (Cell 2 and 3)

Information Element	Value/remark
- Cell selection and re-selection info	
- CHOICE mode	TDD
- Sintersearch	0 dB
- SsearchHCS	47 dB
- RAT List	This parameter is configurable
- Qrxlevmin	-103 dBm
- $Qhyst1_s$	5 (gives actual value of 10 dB)
- HCS Serving cell information	
-HCS Priority	7
- Q HCS	40 (results in actual value of ñ75)
- TcrMax	Not Present

Contents of System Information Block type 11 (FDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm

Contents of System Information Block type 11 (3.84 Mcps TDD and 1.28 Mcps TDD) (Cell 2)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD

- Qrxlevmin	-103 dBm

Contents of System Information Block type 11 (FDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency measurement system information	
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	
- $Qoffset1_{s,n}$	-20 dB
- Maximum allowed UL TX power	33 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115 dBm

Contents of System Information Block type 11 (3.84 Mcps TDD and 1.28 Mcps TDD) (Cell 3)

Information Element	Value/remark
- SIB 12 indicator	FALSE
- Measurement control system information	
- Use of HCS	used
- Intra-frequency cell info list	
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS34.108: Default settings for cell No.3 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	Not Present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.1 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- Qoffset1$_{s,n}$	-20 dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	7
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN indicator	TRUE
- CHOICE mode	TDD
- Primary CCPCH info	
- Cell parameters ID	Reference clause 6.1.4 in TS 34.108: Default settings for cell No.2 (TDD)
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Burst type	Not Present
- Cell Selection and Re-selection info	
- Qoffset1$_{s,n}$	-20dB
- Maximum allowed UL TX power	30 dBm
- HCS neighbouring cell information	Present
- HCS_Priority	6
-Q_HCS	40 (results in actual value of ñ75)
-HCS Cell Reselection Information	
- Penalty Time	40
-Temporary Offset	inf
- CHOICE mode	TDD
- Qrxlevmin	-103 dBm

CELL UPDATE

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
Cell Update Cause	Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 5 and 8)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3

8.3.1.24.5 Test requirement

After step 3 the UE shall reselect to cell 3 and then it shall transmit a CELL UPDATE message which, sets the value "cell reselection" in IE "Cell update cause".

After step 6 the UE shall reselect to cell 2 and then it shall transmit a CELL UPDATE message which, sets the value "cell reselection" in IE "Cell update cause".

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st - 5th Nov 2004

Tdoc ⌘T1-041640

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **981** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to GCF Package 4 RRC test case 8.2.2.4
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The original Radio Bearer reconfig message would not trigger a Radio Bearer reconfiguration failure message. Since there are no physical channel modification the UE would reconfigure the Radio Bearer and respond with a Radio Bearer reconfiguration complete message. The SS will not receive this message as the DL-DPCH channelisation code is modified. This would result in no RB reconfig failure message after the cell update confirm message
Summary of change:	⌘	It is proposed to modify the DL_InformationPerRL and UL-Channgel requirement by specifying information about cell-B (Primary Scrambling Code and UL-scrambling code)
Consequences if not approved:	⌘	The test purpose cannot be tested.

Clauses affected:	⌘	8.2.2.4.4

Other specs Affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	This change aligns the TTCN with the prose.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.2.4 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and cell reselection)

8.2.2.4.1 Definition

8.2.2.4.2 Conformance requirement

If the received message caused the UE to be in CELL_DCH state and the UE failed to establish the dedicated physical channel(s) indicated in the received message the UE shall:

1> revert to the configuration prior to the reception of the message (old configuration);

1> if the old configuration includes dedicated physical channels (CELL_DCH state) and the UE is unable to revert to the old configuration:

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1, using the cause "radio link failure";

2> after the cell update procedure has completed successfully:

3> proceed as below.

Ö

1> transmit a failure response message as specified in TS 25.331 subclause 8.2.2.9, setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "failure cause" to "physical channel failure".

1> set the variable ORDERED_RECONFIGURATION to FALSE;

1> continue with any ongoing processes and procedures as if the reconfiguration message was not received.

Ö

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- includes "Physical channel information elements":

the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

Ö

The UE shall:

1> in case of reception of a RADIO BEARER RECONFIGURATION message:

Ö

2> transmit a RADIO BEARER RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.3.1.7.

8.2.2.4.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RECONFIGURATION FAILURE message after it completes a cell update procedure when the UE cannot reconfigure the new radio bearer and a subsequent failure to revert to the old configuration.

8.2.2.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. SS then send a MEASUREMENT CONTROL message to UE. The UE shall perform periodical traffic volume measurement according to this message and then transmit MEASUREMENT REPORT message back to SS. The SS transmits a RADIO BEARER RECONFIGURATION message, which includes the new radio bearer parameters, to the UE. After the reception of the acknowledgement for the RADIO BEARER RECONFIGURATION message in SS, the SS shall not reconfigure dedicated physical channel in accordance with the settings in the message and release the previous configuration. The UE discovers that it cannot reconfigure the new radio bearer and wants to revert to the old configuration, but the UE cannot revert to the old configuration. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "radio link failure". The SS shall transmit a CELL UPDATE CONFIRM message on downlink DCCH after receiving a CELL UPDATE message. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the value "physical channel failure" to IE "failure cause". UE shall continue its traffic volume measurement and send MEASUREMENT REPORT messages back to SS periodically.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a	←		MEASUREMENT CONTROL	SS requests UE to perform periodical traffic volume measurement.
0b	→		MEASUREMENT REPORT	
1	←		RADIO BEARER RECONFIGURATION	
2				The SS does not reconfigure the dedicated physical channel in accordance with the RADIO BEARER RECONFIGURATION message and shall release the old configuration.
3	→		CELL UPDATE	The value "radio link failure" shall be set in IE "Cell update cause".
4				The SS configures the dedicated physical channel according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
5	←		CELL UPDATE CONFIRM	This message include IE "Physical channel information elements".
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	→		RADIO BEARER RECONFIGURATION FAILURE	The IE "failure cause" shall be set to "physical channel failure"
8	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 0a)

Use the MEASUREMENT CONTROL message as defined in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/Remark
Measurement Identity	7
Measurement Command	Setup
Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurement list	Not Present
CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- Uplink transport channel type	DCH
- UL Target Transport Channel ID	5
- Traffic volume measurement quantity	
- Measurement quantity	RLC Buffer Payload
- Time Interval to take an average or a variance	Not Present
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	True
- Average of RLC Buffer Payload for each RB	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	
- UE state	All states
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	Infinity
- Reporting interval	8000
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 0b and 8)

Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions and the order in which the RBs are reported is not checked:

Information Element	Value/Remarks
Measurement identity	7
Measured Results	
- CHOICE measurement	Traffic volume measured results list
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	2
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	3
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
- RB identity	4
- RLC buffer payload	Check to see if this IE is present
- RLC buffer payload average	Check to see if this IE is absent
- RLC buffer payload variance	Check to see if this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event results	Check to see if this IE is absent

RADIO BEARER RECONFIGURATION message (Step 1)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Clause 9 of TS 34.108 with the following exceptions.

Information Element	Value/remark
CHOICE channel requirement	
Scrambling code number	Set to different value other then the one specified in Radio Bearer Setup message
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary CPICH scrambling code	Ref. to the Default setting for cell 2 in TS34.108 clause 6.1 (FDD)

CELL UPDATE (Step 3)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 5) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
CHOICE channel requirement	Uplink DPCH info
- UplinkDPCH Info	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information common for all radio links	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to initial condition

CELL UPDATE CONFIRM (Step 5) (TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Clause 9 of TS 34.108 with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH timeslots and codes	Same as RADIO BEARER SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to initial condition

RADIO BEARER RECONFIGURATION FAILURE (Step 7)

The contents of RADIO BEARER RECONFIGURATION FAILURE message in this test case is the same as the RADIO BEARER RECONFIGURATION FAILURE message as found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Failure cause	"physical channel failure"

8.2.2.4.5 Test requirement

After step 0a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

After step 2 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "radio link failure".

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure".

After step 7, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, reporting the RLC buffer payload of each RBs mapped on DCH at every 8s interval.

3GPP TSG-T1 Meeting #25
Malta, 1st-5th November 2004

Tdoc ⌘T1-041656

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 982 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	P-TMSI Change in RAU message (GPRS) for GCF Package 2 test case 12.8
Source:	⌘	Racal Instrument Wireless Group, an Aeroflex Company
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	As per 3GPP TS 24.008 section 9.4.14.5 P-TMSI shall be included by the UE in Routing Area Update Request message only on UMTS. But, in 34.123 ñ 1 section 12.8.4.1 in the Expected Sequence step 12 Mobile identity=P-TMSI-1 is expected to be sent by the UE in Routing Area Update Request message.
Summary of change:	⌘	Removed Mobile identity=P-TMSI-1 at step 12 of Expected sequence in section 12.8.4.1 of 34.123 ñ 1.
Consequences if not approved:	⌘	Prose will not be in align with Specification.

Clauses affected:	⌘	12.8.4.1

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	This change is already accepted and implemented in TTCN as per CR T1s040642 (change label : RACAL#*IR_U*0164)

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of Modification>

12.8.4.1 Test procedure

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A (UTRAN) in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B (GSM) in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Cell B is in neigbour cell list of cell A.
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in cell A (UTRAN).
The value of ATT flag in SIB3 IE ìControl Channel Descriptionî is set to value ì0î in cell B (GSM).

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

UE supports both GSM/GPRS and UTRAN Radio Access Technologies Yes/No
UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An attach is performed.

T3314; set to 60 seconds

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Cell B is switched off. (see note)
2	UE			The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C. The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 T3314 = 60 seconds T3312=6 minutes
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell".Set the cell type of cell B to the "Serving cell".
7	UE			UE establish cell reselection to GSM system The following messages are received on Cell B (GERAN)
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
9	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
10	->		ROUTING AREA UPDATE COMPLETE	
11		SS		The SS verifies that the time between the end of Step 10 and the periodic RA updating is Ready Timer Period (T3314) + Periodic Routing Area Updating timer (T3312) (+/- 10%)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updatingí ~~Mobile identity=P-TMSI-1~~ P-TMSI-1 signature Routing area identity = RAI-4
13	<-		ROUTING AREA UPDATE ACCEPT	Update type = 'RA updated'
14	UE			UE is swithed off or power is removed (see ICS)
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'

NOTE:	The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

<End of Modification>

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041688

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 983 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction of package 3 radio bearer test case 14.2.58
Source:	⌘	Ericsson
Work item code:	⌘	TEI
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The uplink TFC intended to be verified in sub-tests 5 and 6 (simultaneous transmission on RB5 and RB6) is restricted by the SS (to only transmit on RB5 or RB6) is causing the UE to buffer data in the uplink RLC entities. This may cause overflow of UE uplink RLC buffers and cause good UE to fail.
Summary of change:	⌘	1. Added UL_TFC7 to restricted transport formats for sub-test 5 and 6 2. Corrected Note 1 in the sub-test table to list all of the TFS part of minimu set of transport formats (UL_TFC2 was missing). 3. Editorial correction to test requirement 3.
Consequences if not approved:	⌘	Good UE may fail.

Clauses affected:	⌘	14.2.58

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Affects Rel 99, Rel4 and Rel5 UEs.

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14.2.58 Streaming / unknown / UL:16 DL:64 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.58.1 Conformance requirement

See 14.2.4.1.

14.2.58.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.58.

14.2.58.3 Method of test

See 14.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Uplink TFS:

	TFI	**RB5 uplink (16 kbps, 20 ms TTI)**	**RB6 (8 kbps)**	**DCCH**
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Uplink TFCS:

TFCI	**(RB5, RB6, DCCH)**
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	**RB5 (64 kbps, 40 ms TTI)**	**RB6 (8 kbps)**	**DCCH**
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	N/A	N/A
	TF3, bits	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF0, TF0)
DL_TFC3	(TF3, TF0, TF0)
DL_TFC4	(TF0, TF1, TF0)
DL_TFC5	(TF1, TF1, TF0)
DL_TFC6	(TF2, TF1, TF0)
DL_TFC7	(TF3, TF1, TF0)
DL_TFC8	(TF0, TF0, TF1)
DL_TFC9	(TF1, TF0, TF1)
DL_TFC10	(TF2, TF0, TF1)
DL_TFC11	(TF3, TF0, TF1)
DL_TFC12	(TF0, TF1, TF1)
DL_TFC13	(TF1, TF1, TF1)
DL_TFC14	(TF2, TF1, TF1)
DL_TFC15	(TF3, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC9	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 632 RB6: 312	RB5: 632 RB6: no data
2	DL_TFC2, DL_TFC10	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 632 RB6: 312	RB5: 1272 RB6: no data
3	DL_TFC3, DL_TFC11	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 632 RB6: 312	RB5: 2552 RB6: no data
4	DL_TFC4, DL_TFC12	UL_TFC2, UL_TFC6	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 632 RB6: 312	RB5: no data RB6: 312
5	DL_TFC5, DL_TFC13	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 632 RB6: 312	RB5: 632 RB6: 312
6	DL_TFC6, DL_TFC14	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 632 RB6: 312	RB5: 1272 RB6: 312
7	DL_TFC7, DL_TFC15	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC8, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 632 RB6: 312	RB5: 2552 RB6: 312

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC4 are part of minimum set of TFCIs.

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the uplink TTI for RB5 is 20 ms while the downlink TTI is 40 ms then, to achieve continous data transmission in uplink the size of the uplink RLC SDU has been set such that it will be transmitted over two subsequent TTIs, i.e. UL RLC SDU size has been set to two times the payload size of the UL TF under test minus 8 bits (the size of a 7 bit length indicator and expansion bit).
RB6: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the uplink TFS size minus 8 bits (the size of a 7 bit length indicator and expansion bit).

14.2.58.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15a and step 15b the UE shall return
   - for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6.
   - for sub-test 2 and 3: RLC SDUs on RB5 having the first 632 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6.
   - for sub-test 4: RLC SDUs on RB6 having the same content as sent by the SS; and no data shall be received on RB5.
   - for sub-test 5: RLC SDUs on RB5 and RB6 having the same content as sent by the SS.
   - for sub-test 6 and 7: RLC SDUs on RB5 having the first 632 bits equal to the content of the test data sent by the SS in downlink; and RLC SDUs on RB6 having the same content as sent by the SS.
4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041691

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 984 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections to RB TCs 14.2.51a.1 (P3), 14.2.51a.2 (low-prio), 14.2.51b.1 (P3) and 14.2.51b.2 (low-prio)
Source:	⌘	Ericsson
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	1. To secure that UE is able to return data then eTimer based discard without explicit signalling' need to be configured in uplink for radio bearer combinations including CS TM radio bearers. 2. Segmentation of SDUs should not be used in radio bearer test cases for TM radio bearers.
Summary of change:	⌘	For test cases 14.2.51a.1, 14.2.51a.2, 14.2.51b.1 and 14.2.51b.2 and TM CS radio bearers: 1. Added specific RLC info parameter values to configure 'Timer based discard without explicit signalling' and no segementation. 2. Corrected UL RLC SDU size parameter to be same as TM PDU payload size (640). 3. Corrected test data size to be equal to DL TM PDU payload size (640) and number of DL SDUs being equal to the number of transport blocks in the TF under test.
Consequences if not approved:	⌘	Good UE may fail.

Clauses affected:	⌘	14.2.51a.1, 14.2.51a.2, 14.2.51b.1 and 14.2.51b.2

Other specs affected:	⌘	Y	N	
			X	Other core specifications
			X	Test specifications

⌘

	X	O&M Specifications

Other comments: ⌘ Affects Rel 99, Rel4 and Rel5 UEs.

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14.2.51a.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:8 DL:8 kbps / PS RAB

14.2.51a.1.1 Conformance requirement

See 14.2.4.1.

14.2.51a.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51a for the 20 ms TTI case.

14.2.51a.1.3 Method of test

Initial Conditions

The following RLC Info parameter values for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 8 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF1, TF0, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF0, TF1, TF1)
UL_TFC6	(TF1, TF0, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 8kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF1, TF0, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF0, TF1, TF1)
DL_TFC6	(TF1, TF0, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1 DL_TFC5	UL_TFC1 UL_TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 640~~1280~~ RB6: 312	RB5: No data RB6: 312
2	DL_TFC2 DL_TFC6	UL_TFC2 UL_TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 640~~1280~~ RB6: 312	RB5: 2x640~~1280~~ RB6: No data
3	DL_TFC3 DL_TFC7	UL_TFC3 UL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 640~~1280~~ RB6: 312	RB5: 2x640~~1280~~ RB6: 312

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2_and UL_TFC4 are part of minimum set of TFCIs

NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).

14.2.51a.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15a and step 15b the UE shall return
   - for sub-test 1: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.

- for sub-test 2: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
- for sub-test 3: an RLC SDU on RB5 and RB6 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51a.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:8 DL:8 kbps / PS RAB

14.2.51a.2.1 Conformance requirement

See 14.2.4.1.

14.2.51a.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51a for the 40 ms TTI case.

14.2.51a.2.3 Method of test

Initial Conditions

The following RLC Info parameter values for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 8 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF1, TF0, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF0, TF1, TF1)
UL_TFC6	(TF1, TF0, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF1, TF0, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF0, TF1)
DL_TFC5	(TF0, TF1, TF1)
DL_TFC6	(TF1, TF0, TF1)
DL_TFC7	(TF1, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note1)	UL RLC SDU size (bits) Note 2	Test data size (bits) Note 2
1	DL_TFC1 DL_TFC5,	UL_TFC1 UL_TFC5	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 640~~2560~~ RB6: 312	RB5: No data RB6: 312
2	DL_TFC2 DL_TFC5,	UL_TFC2 UL_TFC6	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 640~~2560~~ RB6: 312	RB5: 4x640~~2560~~ RB6: No data
3	DL_TFC3 DL_TFC5,	UL_TFC3 UL_TFC7	DL_TFC0, DL_TFC4, UL_TFC0, UL_TFC4,	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 640~~2560~~ RB6: 312	RB5: 4x640~~2560~~ RB6: 312

NOTE1: UL_TFC0, UL_TFC1, UL_TFC2_and UL_TFC4 are part of minimum set of TFCIs
NOTE2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit). As the TTI for RB8 is the same for both downlink and uplink then UL RLC SDU size has been set to achieve UE to return one SDU per TTI, i.e. the UL RLC SDU size has been set equal to the uplink TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).

14.2.51a.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15a and step 15b the UE shall return
   - for sub-test 1: an RLC SDU on RB6 having the same content as sent by SS; and no data shall be received on RB5.
   - for sub-test 2: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 3: an RLC SDU on RB5 and RB6 having the same content as sent by SS.
4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51b Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or Background / UL:16 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.51b.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:16 DL:64 kbps / PS RAB

14.2.51b.1.1 Conformance requirement

See 14.2.4.1.

14.2.51b.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51b for the 20 ms TTI case.

14.2.51b.1.3 Method of test

Initial Conditions

The following RLC Info parameter values for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

See 14.1.2 for test procedure.

For the PS UL:16/DL:64 kbps radio bearer the downlink TTI is 20ms while the uplink TTI is 40ms. As the SS will send one DL SDU every 20 ms then the UE test loop function will return 2 UL SDUs per uplink TTI. To not cause uplink transmission buffer overflow then the UL RLC SDU size should be chosen such that the UE will transmit 2 RLC SDUs

per uplink TTI. For the case when the transport format under test does not allow for 2 SDUs to fit into the transport format size without requiring concatenation then the UL RLC SDU size shall be chosen such that one SDU is returned per uplink TTI.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 16 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF1, TF0, TF0)
UL_TFC4	(TF1, TF1, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF0, TF1)
UL_TFC7	(TF0, TF1, TF1)
UL_TFC8	(TF0, TF2, TF1)
UL_TFC9	(TF1, TF0, TF1)
UL_TFC10	(TF1, TF1, TF1)
UL_TFC11	(TF1, TF2, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 1280 RB6: 312 (note 3)	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2 ,UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 1280 RB6: 312 (note 4)	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 1280 RB6: 312 (note 4)	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC2 ,UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~1280~~ RB6: 312 (note 4)	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC3 ,UL_TFC9	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 640~~1280~~ RB6: 312	RB5: 2x640~~1280~~ RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 640~~1280~~ RB6: 312 (note 3)	RB5: 2x640~~1280~~ RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~1280~~ RB6: 312 (note 4)	RB5: 2x640~~1280~~ RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~1280~~ RB6: 312 (note 4)	RB5: 2x640~~1280~~ RB6: 952
9	DL_TFC9, DL_TFC19	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~1280~~ RB6: 312 (note 4)	RB5: 2x640~~1280~~ RB6: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs.						
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).						
NOTE 3: RB6 (TF1): For sub-tests where uplink transport format TF1 (1x336) is used then no adoptation to the difference in downlink TTI (20 ms) and uplink TTI (40ms) is possible as this would require the UE to concatenate 2 SDUs into one PDU. For these sub-tests the UL RLC SDU size is set equal to the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						
NOTE 4: RB8 (TF2): For sub-tests where uplink transport formats TF2 (2x336) is used then to adopt to the difference in downlink TTI (20 ms) and uplink TTI (40ms) the UL RLC SDU size has been chosen such that 2 SDUs will be returned per uplink TTI. I.e. the UL RLC SDU size is set equal to half the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).						

14.2.51b.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.

2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.

3. At step 15a and step 15b the UE shall return

   - for sub-test 1: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.

   - for sub-test 2: RLC SDUs on RB6 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5.

   - for sub-test 3, 4: RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink

   - for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.

   - for sub-test 6 : RLC SDUs on RB5 and RB6 having the same content as sent by SS

   - for sub-test 7 : RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink

   - for sub-test 8 , 9 : RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.51b.2 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 40 ms TTI + Interactive or background / UL:16 DL:64 kbps / PS RAB

14.2.51b.2.1 Conformance requirement

See 14.2.4.1.

14.2.51b.2.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51b for the 40 ms TTI case.

14.2.51b.2.3 Method of test

Initial Conditions

The following RLC Info parameter values for the Conversational / unknown / UL:64 DL:64 kbps / CS RAB shall be set by the SS:

Uplink RLC TM RLC Transmission RLC discard CHOICE *SDU Discard Mode* Timer based no explicit Timer_discard Segmentation indication	 100ms FALSE
Downlink RLC TM RLC Segmentation indication	 FALSE
NOTE: 'Timer based discard without explicit signalling' is configured in uplink to secure that the UE will be able to return data in uplink for the case when the UE test loop function, due to processing delays, will not deliver the SDUs in one and the same TTI, but instead in two subsequent TTIs.	

See 14.1.2 for test procedure.

For the PS UL:16/DL:64 kbps radio bearer the downlink TTI is 20ms while the uplink TTI is 40ms. As the SS will send one DL SDU every 20 ms then the UE test loop function will return 2 UL SDUs per uplink TTI. To not cause uplink transmission buffer overflow then the UL RLC SDU size should be chosen such that the UE will transmit 2 RLC SDUs per uplink TTI. For the case when the transport format under test does not allow for 2 SDUs to fit into the transport format size without requiring concatenation then the UL RLC SDU size shall be chosen such that one SDU is returned per uplink TTI.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 16 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF1, TF0, TF0)
UL_TFC4	(TF1, TF1, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF0, TF1)
UL_TFC7	(TF0, TF1, TF1)
UL_TFC8	(TF0, TF2, TF1)
UL_TFC9	(TF1, TF0, TF1)
UL_TFC10	(TF1, TF1, TF1)
UL_TFC11	(TF1, TF2, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	4x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 640~~2560~~ RB6: 312 (note 3)	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 640~~2560~~ RB6: 312	RB5: 4x640~~2560~~ RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 640~~2560~~ RB6: 312 (note 3)	RB5: 4x640~~2560~~ RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 952
9	DL_TFC9, DL_TFC19	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 640~~2560~~ RB6: 312 (note 3)	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 640~~2560~~ RB6: 312	RB5: 4x640~~2560~~ RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 640~~2560~~ RB6: 312 (note 3)	RB5: 4x640~~2560~~ RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 952
9	DL_TFC9, DL_TFC19	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 1272

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).

NOTE 3: RB6 (TF1): For sub-tests where uplink transport format TF1 (1x336) is used then no adoptation to the

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 640~~2560~~ RB6: 312 (note 3)	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC3, UL_TFC9	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 640~~2560~~ RB6: 312	RB5: 4x640~~2560~~ RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 640~~2560~~ RB6: 312 (note 3)	RB5: 4x640~~2560~~ RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 952
9	DL_TFC9, DL_TFC19	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 640~~2560~~ RB6: 312 (note 4)	RB5: 4x640~~2560~~ RB6: 1272

14.2.51b.2.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15a and step 15b the UE shall return
   - for sub-test 1: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
   - for sub-test 2: RLC SDUs on RB6 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5.
   - for sub-test 3, 4: RLC SDUS on RB5 having the same content as sent by SS; and rlc sduSon RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
   - for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 6 : RLC SDUs on RB5 and RB6 having the same content as sent by SS
   - for sub-test 7 : RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
   - for sub-test 8 , 9 : RLC SDUs on RB5 having the same content as sent by SS ; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041692

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 985 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Addition of radio bearer test case for PS streaming and downlink rate up to 128 kbps
Source:	⌘	Ericsson, Cingular
Work item code:	⌘	TEI
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	PS streaming services is an important feature of 3G networks. PS streaming services for such as streaming video clips of sport events require downlink rates of up to 128 kbps. Currently there is no test coverage of PS streaming and downlink rate of 128 kbps.
Summary of change:	⌘	New radio bearer test case added: 14.2.58a Streaming / unknown / UL:16 DL:128 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH
Consequences if not approved:	⌘	Lack of test coverage for streaming services requering downlink rates upto 128 kbps.

Clauses affected:	⌘	14.2.58a (new)

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	34.108 (T1-041685) 34.123-2 (T1-041734)
	X		Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Affects Rel 99, Rel4 and Rel5 UEs.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14.2.58.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15a and step 15b the UE shall return
   - for sub-test 1: RLC SDUs on RB5 having the same content as sent by the SS; and no data shall be received on RB6.
   - for sub-test 2 and 3: RLC SDUs on RB5 having the first 632 bits equal to the content of the test data sent by theSS in downlink; and no data shall be received on RB6.
   - for sub-test 4: RLC SDUs on RB6 having the same content as sent by the SS; and no data shall be received on RB5.
   - for sub-test 5: RLC SDUs on RB5 and RB6 having the same content as sent by the SS.
   - for sub-test 6 and 7: RLC SDUs on RB5 having the first 632 bits equal to the content of the test data sent by theSS in downlink; and RLC SDUs on RB6 having the same content as sent by the SS.
4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.58a Streaming / unknown / UL:16 DL:128 kbps / PS RAB + Interactive or background / UL:8 DL:8 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.58a.1 Conformance requirement

See 14.2.4.1.

14.2.58a.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.58a.

14.2.58a.3 Method of test

See 14.1.2 for test procedure. However, in this test the RM attribute values used shall be derived separately in the UL and DL as the mid-values of the RM attribute value ranges as specified by the reference radio bearer configuration.

Uplink TFS:

	TFI	RB5 uplink (16 kbps, 20 ms TTI)	RB6 (8 kbps)	DCCH
TFS	TF0, bits	0x336	0x336	0x148
	TF1, bits	1x336	1x336	1x148

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF0, TF1, TF0)
UL_TFC3	(TF1, TF1, TF0)
UL_TFC4	(TF0, TF0, TF1)
UL_TFC5	(TF1, TF0, TF1)
UL_TFC6	(TF0, TF1, TF1)
UL_TFC7	(TF1, TF1, TF1)

Downlink TFS:

	TFI	RB5 (128 kbps, 20 ms TTI)	RB6 (8 kbps)	DCCH
TFS	TF0, bits	0x656	0x336	0x148
	TF1, bits	1x656	1x336	1x148
	TF2, bits	2x656	N/A	N/A
	TF3, bits	3x656	N/A	N/A
	TF4, bits	4x656	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF2, TF0, TF0)
DL_TFC3	(TF3, TF0, TF0)
DL_TFC4	(TF4, TF0, TF0)
DL_TFC5	(TF0, TF1, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF2, TF1, TF0)
DL_TFC8	(TF3, TF1, TF0)
DL_TFC9	(TF4, TF1, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF1, TF0, TF1)
DL_TFC12	(TF2, TF0, TF1)
DL_TFC13	(TF3, TF0, TF1)
DL_TFC14	(TF4, TF0, TF1)
DL_TFC15	(TF0, TF1, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF2, TF1, TF1)
DL_TFC18	(TF3, TF1, TF1)
DL_TFC19	(TF4, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: 312	RB5: 632 RB6: no data
2	DL_TFC2, DL_TFC12	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: 312	RB5: 1272 RB6: no data
3	DL_TFC3, DL_TFC13	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: 312	RB5: 1912 RB6: no data
4	DL_TFC4, DL_TFC14	UL_TFC1, UL_TFC5	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC5	RB5: 312 RB6: 312	RB5: 2552 RB6: no data
5	DL_TFC5, DL_TFC15	UL_TFC2, UL_TFC6	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC4, UL_TFC6	RB5: 312 RB6: 312	RB5: no data RB6: 312
6	DL_TFC6, DL_TFC16	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 632 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 1272 RB6: 312
8	DL_TFC8, DL_TFC18	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 1912 RB6: 312
9	DL_TFC9, DL_TFC19	UL_TFC3, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC4	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC7	RB5: 312 RB6: 312	RB5: 2552 RB6: 312

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2 and UL_TFC4 are part of minimum set of TFCIs. NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the UL TF under test minus 8 bits (the size of a 7 bit length indicator and expansion bit). RB6: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the uplink TF under test minus 8 bits (the size of a 7 bit length indicator and expansion bit).						

14.2.58a.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15a and step 15b the UE shall return
   - for sub-test 1, 2, 3 and 4: RLC SDUs on RB5 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB6.
   - for sub-test 5: RLC SDUs on RB6 having the same content as sent by the SS; and no data shall be received on RB5.
   - for sub-test 6, 7, 8 and 9: RLC SDUs on RB5 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and RLC SDUs on RB6 having the same content as sent by the SS.
4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st-5th November 2004

Tdoc ⌘T1-041704

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **986** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to prose for Package 2 MM test case 9.4.5.4.1 (Revision of T1-041527)
Source:	⌘	MCC160, Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The prose is not aligned to the requirements of TS 34.108 cl. 6.1.4.2.
Summary of change:	⌘	Organisation of the cells and SIBs in line with the requirements of TS 34.108 cl. 6.1.4.2.
Consequences if not approved:	⌘	An alternative procedure for cell selection is to be specified.

Clauses affected:	⌘	9.4.5.4.1

		Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘	34.123-3
		X		Test specifications		
			X	O&M Specifications		

Other comments:	⌘	Affects R99, Rel-4 and Rel-5.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

9.4.5.4.1 Location updating / periodic search for HPLMN or higher priority PLMN / UE waits time T

9.4.5.4.1.1 Definition

9.4.5.4.1.2 Conformance requirement

1. In the case that the mobile has a stored "Equivalent PLMNs" list the mobile shall only select a PLMN if it is of a higher priority than those of the same country as the current serving PLMN which are stored in the "Equivalent PLMNs" list.

2. In steps i), ii) and iii) of the Automatic Network Selection Mode Procedure, the MS shall limit its attempts to access higher priority PLMNs to PLMNs of the same country as the current serving VPLMN;

3. If the MS is in idle mode in a VPLMN, the MS shall periodically attempt to obtain service on its HPLMN or higher priority PLMN listed in "user controlled PLMN selector" or "operator controlled PLMN selector". The MS shall make an attempt if the MS is on the VPLMN at time T after the last attempt.

References

TS 22.011 clause 3.2.2.5. and TS 23.122 4.4.3.3.

9.4.5.4.1.3 Test purpose

To verify that if a UE is camped on a VPLMN it will perform a search for higher priority networks (e.g HPLMN) with a periodicity of T, which is the Search Period stored in the USIM.

This test will confirm that, if a cell from a new PLMN becomes available, within a time T the UE will perform a location updating on it only if the following requirements are met:

- The PLMN of this new cell if from the same country as the VPLMN, and

- This PLMN is the HPLMN stored in the USIM, or has a higher priority than the serving VPLMN or any PLMN from the country of the VPLMN that is stored in the equivalent PLMN list.

9.4.5.4.1.4 Method of test

Initial conditions

- System Simulator:

  - four cells A, B, C and D, belonging to different location areas with location identification a, b, c and d. Their country codes and mobile network codes are defined as follows:

Cell	Cell No. mapped to 34.108, 6.1.4.2	MCC	MNC
A	1	001	001
B	2	022	002
C	7	001	010
D	4	001	100
~~D~~E	3	001	~~100~~030

  Initially Cells A, B and C shall not be broadcasting. IMSI attach/detach is not allowed on any of other cells. Cell E is not activated.

- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted".
  - The following USIM fields are configured:

USIM field	Priority	PLMN	Cell No. mapped to 34.108, 6.1.4.2
$EF_{HPLMNwAcT}$	1st	A	1
$EF_{PLMNwAcT}$	1st	B	n.a.
	2nd	E	n.a.
$EF_{OPLMNwAcT}$	1st	C	3
	2nd	D	2

In the table PLMN X is the PLMN code from cell X (see above). ~~PLMN E is defined as MCC=001, MNC=030.~~

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell D shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell D. The SS shall include the PLMN E in the list of equivalent PLMNs that is sent in the Location Update Accept message. Cells B and C shall be made available after 7 minutes from switched on, thus ensuring the UE fails to find any higher priority PLMN during its first attempt. It is verified that the UE does not perform a location update request on Cell B or C (waiting for at least 6 minutes after broadcasting of Cells B and C). Then Cell A is also made available, and it is verified that the UE performs a location update request on Cell A within 6 minutes after broadcasting of Cell A.

<END OF MODIFIED SECTION>

<START OF MODIFIED SECTION>

Specific message contents

Contents of System Information Block type 18 of Cell B:

- Idle mode PLMN identities	
- PLMNs of intra-frequency cells list	
- PLMN identity	Set to PLMN B
- PLMN identity	Set to PLMN E
- PLMNs of inter-frequency cells list	Not present
- PLMNs of inter-RAT cells list	Not present
- Connected mode PLMN identities	Not present

~~None.~~

<END OF MODIFIED SECTION>

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th Nov, 2004

Tdoc ⌘T1-041705

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **987** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 4 RRC test case 8.1.7.1d
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘ As per **34.123-1 section 8.1.7.1d.4**:

1) The specific message content for the SECURITY MODE COMMAND (step 4) mentions RRC sequence number set to ì0î for SRB2 in the IE ì**Downlink integrity protection activation info**î. It should be set to the ìCurrent RRC SN for SRB2î

2) At Step 5 of the Expected Sequence it is mentioned that the SS switches OFF the cell. However before the power levels can be reduced to less than ñ90 dB in the SS, the UE will be able to transmit the SECURITY MODE COMPLETE message. The expected sequence should be modified so that the SS can expect to receive the SECURITY MODE COMPLETE message from the UE and the associated RLC ack is not transmitted. Also the Cell should be switched off after reception of this message.

3) At Step 8 the SS is expecting CELL UPDATE with cause ìRadio Link Failureî. However, given the default contents of the RRC Connection Setup message the cause in the CELL UPDATE will actually be reported as ìRLC unrecoverable errorî.

Summary of change: ⌘ Following changes are made to 34.123-1 section 8.1.7.1d.4:

1) The specific message content for the SECURITY MODE COMMAND message (step4) is modified so that the RRC sequence number for SRB2 in the IE ì**Downlink integrity protection activation info**î is set to ìCurrent RRC SN for SRB2î

2) Step 5 of the expected sequence is modified so that the SS expects to receive the SECURITY MODE COMPLETE message from the UE and the

	associated comment is updated as below: ìSS is configured not to acknowledge this message. After receiving this message the SS turns off power in the cell.î 3) Specific message content for the RRC Connection Setup message is added. Specifically, the TimerPoll IE for SRB2 is set to ìOMITî. This will ensure that the test purpose is achieved.
Consequences if not approved:	⌘ Test case may fail a conformant UE.

Clauses affected:	⌘	8.1.7.1d.4			
Other specs affected:	⌘	Y / N / X	Other core specifications	⌘	TS 34.123-3
		X /	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘	Affects R99, Rel-4 and Rel-5 UEs			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

8.1.7.1d Security mode control in CELL_DCH state interrupted by a cell update

8.1.7.1d.1 Definition

8.1.7.1d.2 Conformance requirement

If:

- a cell update procedure according to subclause 8.3.1 is initiated; and
- the received SECURITY MODE COMMAND message causes either,
  - the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE; and/or
  - the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:

the UE shall:

1> abort the ongoing integrity and/or ciphering reconfiguration;

1> resume data transmission on any suspended radio bearer and signalling radio bearer mapped on RLC-AM or RLC-UM;

1> allow the transmission of RRC messages on all signalling radio bearers with any RRC SN;

1> when the response message has been submitted to lower layers for transmission:

2> if the SECURITY MODE COMMAND message contained the IE "Ciphering mode info":

3> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

3> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

3> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

3> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

2> continue with any ongoing processes and procedures as if the invalid SECURITY MODE COMMAND message has not been received; and

2> clear the variable SECURITY_MODIFICATION;

2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.12.4b,

8.1.7.1d.3 Test purpose

To confirm that the UE aborts the ongoing integrity and ciphering configuration and the security mode control procedure in case it is interrupted by a cell update procedure.

8.1.7.1d.4 Method of test

Initial Condition

System Simulator: 1 cell.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

The RRC CONNECTION SETUP message used in the initial setup should be as shown under Specific Message Contents below.

Test Procedure

The UE is in CELL_DCH state. The SS initiates an Authentication and Ciphering procedure, which will result in the generation of a new security keyset (CK/IK).

The SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE..

Then SS immediately turnes of the power in the cell, so the UE will initiate the cell reselection procedure.

The UE shall then abort the Security procedure.

Then after 6 seconds the power in turned on in the cell again.

Next, the SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-AM mode. The UE shall respond to with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM using the same old integrity and ciphierring configutation as used before the SECURITY MODE COMMAND was received...

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state.
2	←		AUTHENTICATION AND CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
3	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
4	←		SECURITY MODE COMMAND	See specific message contents.
5	→		SECURITY MODE COMPLETE	SS is configured not to acknowledge this message. After receiving this message ~~When the RLC ack is received from the UE,~~ the SS turns off power in the cell.
6				The UE starts cell selection
7				After waiting for 6 seconds, the SS turns on power in the cell.
8	→		CELL UPDATE	This message includes the value "Radio link failure" set in IE "Cell update cause". The SS verifies that message is integrity-protected correctly with the old security configuration
9	←		CELL UPDATE CONFIRM	This message includes "Physical channel information elements".
10	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that message is both integrity-protected and ciphered correctly with the old security configuration
11	←		UE CAPABILITY ENQUIRY	The SS repeats step 11, 12 and 13 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
12	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
13	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

RRC CONNECTION SETUP (message used in the initial setup)

Use the same message type and contents as found in clause 9 of TS 34.108 with the following exception:

Signalling RB information to setup	(AM DCCH for RRC)
- RB identity	Not Present
- CHOICE RLC info type	
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	32
- Timer_RST	500
- Max_RST	1
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	OMIT
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

SECURITY MODE COMMAND (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
Activation time for DPCH	Not Present
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
RB Identity	20
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0
	Current RRC SN for SRB1
	~~0~~
	Current RRC SN for SRB2
	Current RRC SN for SRB3
	Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	PS Domain

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

CELL UPDATE (Step 8)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in clause 9 of TS 34.108 Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI - SRNC Identity - S-RNTI Cell Update Cause	 Check to see if set to '0000 0000 0001' Check to see if set to '0000 0000 0000 0000 0000 0001' "Radio link failure"

CELL UPDATE CONFIRM (Step 9) (FDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 8
RRC State indicator	CELL_DCH
CHOICE channel requirement	Uplink DPCH info
-UplinkDPCH Info	Same as RADIO BEARER SETUP message used to move to intial condition
Downlink information common for all radio links	Same as RRC CONNECTION SETUP message used to move to initial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to intial condition

CELL UPDATE CONFIRM (Step 9) (TDD)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in clause 9 of TS 34.108 Annex A with the following exceptions:

Information Element	Value/remark
U-RNTI	Same as CELL UPDATE message in step 8
RRC State indicator	CELL_DCH
UplinkDPCH timeslots and codes	Same as RADIO BEARER SETUP message used to move to intial condition
Downlink information for each radio links	Same as RADIO BEARER SETUP message used to move to intial condition

8.1.7.1d.5 Test requirement

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received at step 12 is integrity protected with UIA algorithm and ciphered with the old ciphering configuration and algorithm and not the one indicated in the SECURITY MODE COMMAND (Step 4) message.

<< END OF MODIFIED SECTION >>

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041733

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 988 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	New HSDPA radio bearer test cases
Source:	⌘	Ericsson
Work item code:	⌘	HSDPA
Date:	⌘	24/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘ Three new HSDPA radio bearer combinations are proposed in the LS from RAN2 in R2-041897 (also including a CR to 34.108). This CR introduces correspondent radio bearer test cases to 34.123-1.

Summary of change: ⌘ Following new HSDPA radio bearer test cases are introduced:

14.6.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.4 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.5 Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

Consequences if not approved: ⌘ Lack of test coverage for HSDPA radio bearer combinations.

Clauses affected: ⌘ 14.6.3 (new), 14.6.4 (new) and 14.6.5 (new)

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
	X		Test specifications	34.123-2 (T1-041735)
		X	O&M Specifications	

Other comments: ⌘

How to create CRs using this form:

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14.6.3 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.3.1 Conformance requirement

See 14.6.1.1.

14.6.3.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.3.

14.6.3.3 Method of test

FFS

14.6.3.4 Test requirements

FFS

14.6.4 Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.4.1 Conformance requirement

See 14.6.1.1.

14.6.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.4.

14.6.4.3 Method of test

FFS

14.6.4.4 Test requirements

FFS

14.6.5 Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + Interactive or background / UL:384 DL:[Bit rate depending on the UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.4.1 Conformance requirement

See 14.6.1.1.

14.6.4.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.5.

14.6.4.3 Method of test

FFS

14.6.4.4 Test requirements

FFS

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041739

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 989 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to GMM test case 12.9.7a
Source:	⌘	Ericsson
Work item code:	⌘	TEI
Date:	⌘	31/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘
1. Conformance requirement need to be updated
2. The test procedure does not consider the case that a UE may activate PDP context(s) to replace any previously active PDP contexts.
3. Test requirement not correct.

Summary of change: ⌘
1. Conformance requirement updated
2. Test procedure:
   a. ICS/IXIT statement ìMethod of context activationî added
   b. Test procedure clarified to cover all possible metods of context activation.
3. Test requirement corrected

Consequences if not approved: ⌘ Good UE may fail.

Clauses affected: ⌘ 12.9.7a

Other specs affected: ⌘

Y	N	
	X	Other core specifications
	X	Test specifications
	X	O&M Specifications

⌘

Other comments: ⌘ Affects Rel 99, Rel4 and Rel5 UEs.

How to create CRs using this form:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

12.9.7a Service Request / rejected / No PDP context activated

12.9.7a.1 Definition

12.9.7a.2 Conformance requirement

If the network rejects a service request procedure with the cause "No PDP context activated"~~, the UE shall~~:

- The UE shall deactivate locally all active PDP contexts and the UE shall enter the state GMM-REGISTERED.NORMAL-SERVICE. The UE may also activate PDP context(s) to replace any previously active PDP contexts.

NOTE: In some cases, user interaction may be required and then the UE cannot activate the PDP context(s) automatically.

~~- deactivate all active PDP contexts.~~

~~After the UE deactivates all active PDP contexts, UE shall:~~

~~- perform PDP context(s) activation.~~

Reference

TS 24.008 clauses 4.7.13.4

12.9.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No PDP context activated".

12.9.7a.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Method of context activation

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #40 (No PDP context activated).

c) After the UE receives the SERVICE REJECT message, the UE shall deactivate locally all active PDP contexts.

d) If the UE not automatically activates the PDP context (to replace the previously active PDP context) then a PS call is initiated by MMI or by AT command. The UE shall send a SERVICE REQUEST with Service type = "signalling".

~~shall send the ACTIVATE PDP CONTEXT REQUEST message.~~

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1				The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 26.
2				The SS is set in network operation mode II and activates cell A.
3				The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	
6	->		ATTACH COMPLETE	
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		AUTHENTICATION AND CIPHERING REQUEST	
10	->		AUTHENTICATION AND CIPHERING RESPONSE	
11	SS			The SS initiates a security mode control procedure.
12	UE			After a PS call is established, the UE suspends transmission of the user data.
13	SS			The SS initiates a Radio Bearer release procedure.
14	UE			The UE resumes the transmission of the user data.
15	->		SERVICE REQUEST	Service type = "data"
16	<-		SERVICE REJECT	Reject cause = "No PDP context activated"
17	UE			The UE shall deactivate locally all active PDP contexts.
18	UE			The UE initiates a PS call, automatically, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		AUTHENTICATION AND CIPHERING REQUEST	
21	->		AUTHENTICATION AND CIPHERING RESPONSE	
21	SS			SS initiates a security procedure by sending SECURITY MODE COMMAND message.
22	UE			The UE is switched off or power is removed (see ICS).
23	UE			The UE initiates Detach request, by MMI or by AT command.
24	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
25	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
26	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25.

Specific message contents

None.

12.9.7a.5 Test requirements

At step4, when the UE is powered on or switched on, the UE shall initiate the PS attach procedure.

At step15, the UE shall initiates a Service request procedure by sending a SERVICE REQUEST message with Service type = "data".

At step19, the UE shall initiates a Service request procedure by sending a SERVICE REQUEST message with Service type = "signalling".

~~At step4, when the UE is powered on or switched on, UE shall:~~

~~initiate the PS attach procedure.~~

~~When the UE receives a SERVICE REJECT message with the cause "No PDP context activated", UE shall:~~

~~- deactivate all active PDP context.~~

~~At step15, UE shall:~~

~~- initiates a Service request procedure by sending a SERVICE REJECT message with Service type = "data".~~At step

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CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 990 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections to RRC Package 4 test cases 8.4.1.42 & 8.4.1.43 (revision of T1-0401636)
Source:	⌘	Ericsson, ETSI MCC160, Nokia
Work item code:	⌘	TEI
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘ The test cases prose contains several inconsistencies & missing information that need to be corrected.

Summary of change: ⌘

TC 8.4.1.42

1. Conformance requirement updated.
2. In the initial conditions Ciphering should not be made mandatory. The conformance requirement tested here does not mandate the ciphering to be activated.
3. In the expected sequence add the full CS session set up procedure: In case ciphering is used, the CS RAB must be protected & the security needs to be updated to CS domain.

TC 8.4.1.43

1. Conformance requirement updated.
2. Test purpose updated to be in line with the test procedure.
3. In the initial conditions Ciphering should not be made mandatory. The conformance requirement tested here does not mandate the ciphering to be activated.
4. In the expected sequence add the full PS session set up procedure: In case ciphering is used, the PS RAB must be protected & the security needs to be updated to PS domain.
5. In the specific message content:
   a. Step 8: Activate the compressed mode pattern in the Physical Channel Reconfiguration message, as required by the test procedure.
   b. Step 11: Add the compressed mode information in the Transport Channel Reconfiguration message, as required by the test

		procedure. c. Step 16: Use the correct default Radio Bearer Release message, as we release the CS domain RAB. d. Step 20: Added for clarity.
Consequences if not approved:	⌘	The test case prose is incomplete and does not align with the TTCN. The test cases may fail a conformant UE.

Clauses affected:	⌘	8.4.1.42, 8.4.1.43			
		Y	**N**		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4.1.42 Measurement Control and Report: Change of Compressed Mode Method

8.4.1.42.1 Definition

8.4.1.42.2 Conformance requirement

If variable INVALID_CONFIGURATION has value FALSE after UE has performed the checks above, the UE shall:

1> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag") in the variable TGPS_IDENTITY):

2> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive" at the frame, indicated by IE "Activation time" (see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

2> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

~~3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive".~~

NOTE1: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

NOTE2: The deactivation of pattern sequences only occurs as a result of RRC messages received by the UE, i.e. the UE does not set the "Current TGPS Status Flag" to "inactive" after the final gap of a finite length pattern sequence.

1> update each pattern sequence to the variable TGPS_IDENTITY according to the IE "TGPSI";

1> update into the variable TGPS_IDENTITY the configuration information defined by IE group" transmission gap pattern sequence configuration parameters ";

1> after the instant in which the message is to be executed, as specified in subclause 8.6.3.1:

2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in the variable TGPS_IDENTITY is set to "activate" at the time indicated by IE "TGCFN"; and

2> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

NOTE1: If the pattern is activated with a message that includes the IE "Activation time", and if the CFN value indicated by the IE "Activation Time" and the CFN value indicated by the TGCFN are included in the same TTI (but not at the TTI boundary) common to all the transport channels that are multiplexed onto the reference CCTrCh (as defined in subclause 8.6.3.1), and if the CFN value indicated by the TGCFN is equal or higher than the CFN value indicated by the IE "Activation Time" (as defined in subclause 8.6.3.1) value, the UE behaviour is not specified.

NOTE2: If the pattern is activated with a message used to perform timing re-initialised hard handover, the UE can start evaluating the activation of the pattern (i.e. compare the value of the CFN in the new configuration with the value of the TGCFN) at any time between the message activation time and the completion of the synchronisation procedure A.

2> if the IE "DPCH compressed mode info" is included in a message used to perform a Hard Handover with change of frequency (see subclause 8.3.5); or

2> if the IE "DPCH compressed mode info" is included in a message used to transfer the UE from Cell_FACH to Cell_DCH, and the cell in which the UE transited from CELL_FACH state is not included in the active set for the CELL_DCH state (see subclause 8.4.1.7.2):

3> not begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> else:

3> begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> begin the inter-RAT measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":

3> start the concerned pattern sequence immediately at that CFN.

~~1> after the new configuration has been taken into use:~~

~~2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in the variable TGPS_IDENTITY is set to "activate" at the time indicated by IE "TGCFN"; and~~

~~2> begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;~~

~~2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":~~

~~3> start the concerned pattern sequence immediately at that CFN.~~

1> monitor if the parallel transmission gap pattern sequences create an illegal overlap, and in case of overlap, take actions as specified in subclause 8.2.11.2.

Ö .

Uplink and downlink compressed mode methods are described in TS 25.212. For UL "higher layer scheduling" compressed mode method and transport format combination selection, see TS 25.321.

Reference

3GPP TS 25.331 clause 8.6.6.15.

8.4.1.42.3 Test purpose

To confirm that the UE supports change of compressed mode method included in a RADIO BEARER SETUP message.

To confirm that the UE supports change of compressed mode method included in a RADIO BEARER RELEASE message.

8.4.1.42.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1 on frequency f_1, cell 4 on frequency f_2 and cell 5 on frequency f_3.

UE: "PS-DCCH_DCH" (state 6-7) as specified in clause 7.4 of TS 34.108. ~~Ciphering shall be activated.~~

This test case applies only for UEs requiring compressed mode to perform inter- frequency measurements and supporting both PS and CS domains.

Test Procedure

Table 8.4.1.42-1 illustrates the downlink power to be applied for the 3 cells, as well as the frequency and scrambling code for each cell.

Table 8.4.1.42-1a

Parameter	Unit	Cell 1					
Frequency		f_1					
Scrambling code		Scrambling code 1					
		T0	T1	T2	T3	T4	T5
CPICH Ec	dBm/3.84 MHz	-60	-70	-70	-60	-70	-70

Table 8.4.1.42-1b

Parameter	Unit	Cell 4						Cell 5					
Frequency		f_2						f_3					
Scrambling code		Scrambling code 3						Scrambling code 2					
		T0	T1	T2	T3	T4	T5	T0	T1	T2	T3	T4	T5
CPICH Ec	dBm/3.84 MHz	-95	-60	-60	-60	-60	-60	-95	-95	-60	-95	-95	-60

The UE is initially in CELL_DCH, and has only cell 1 in its active set.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to download compressed mode parameters in the UE but without activating compressed mode. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b), by sending a MEASUREMENT CONTROL message to the UE.

The SS waits for 2560 ms for the UE to activate compressed mode.

At instant T1, the downlink power is changed according to what is shown in table 8.4.1.42-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

The SS initiates an MT CS call, establishes a CS domain RAB and changes the compressed mode method to (from HLS to SF/2), by sending a RADIO BEARER SETUP message on DCCH using AM-RLC. The UE shall answer with a RADIO BEARER SETUP COMPLETE message.

At instant T2, the downlink power is changed according to what is shown in table 8.4.1.42-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

At instant T3, the downlink power is changed according to what is shown in table 8.4.1.42-1.The increased quality of the used frequency should result in clearing of the concerning TRIGGERED_2B_EVENT.

The SS establishes PS domain RAB and changes compressed mode method (from SF/2 to HLS) by sending a RADIO BEARER SETUP message on DCCH using AM-RLC. The UE shall answer with a RADIO BEARER SETUP COMPLETE message.

At instant T4, the downlink power is changed according to what is shown in table 8.4.1.42-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Next, the SS releases the PS domain RAB and changes compressed mode method (from HLS to SF/2) by sending a RADIO BEARER RELEASE message on DCCH using AM-RLC. The UE shall answer with a RADIO BEARER RELEASE COMPLETE message.

At instant T5, the downlink power is changed according to what is shown in table 8.4.1.42-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	SS downloads compressed mode parameters (using HLS method) without activating compressed mode
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of compressed mode parameters
3	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE and activates compressed mode
4				The SS changes the power of the cells according to column T1 in table 8.4.1.42-1.
5	→		MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
5a	←		PAGING TYPE 2	Initiates MT CS call
5b	→		INITIAL DIRECT TRANSFER (PAGING RESPONSE)	RR
5c	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION REQUEST)	MM
5d	→		UPLINK DIRECT TRANSFER (AUTHENTICATION RESPONSE)	MM
5e	←		SECURITY MODE COMMAND	
5f	→		SECURITY MODE COMPLETE	
5g	←		DOWNLINK DIRECT TRANSFER (SET UP)	CC
5h	→		UPLINK DIRECT TRANSFER (CALL CONFIRMED)	CC
6	←		RADIO BEARER SETUP	SS establishes CS domain RAB (speech) and changes to SF/2 compressed mode method
7	→		RADIO BEARER SETUP COMPLETE	The UE acknowledges the establishment of the RAB and the compressed mode method change.
7a	→		UPLINK DIRECT TRANSFER (ALERTING)	CC (This message is optional)
7b	→		UPLINK DIRECT TRANSFER (CONNECT)	CC
7c	←		DOWNLINK DIRECT TRANSFER (CONNECT ACKNOWLEDGE)	CC
8				The SS changes the power of the cells according to column T2 in table 8.4.1.42-1.
9	→		MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.

10			The SS changes the power of the cells according to T3 in table 8.4.1.42-1 (so the UE can trigger event 2b again for both frequencies if suitable conditions arise)
11	←	RADIO BEARER SETUP	SS establishes PS domain RAB and changes compressed mode method to HLS.
12	→	RADIO BEARER SETUP COMPLETE	The UE acknowledges the establishment of the RAB and the compressed mode method change.
13			The SS changes the power of the cells according to column T4 in table 8.4.1.42-1.
14	→	MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
15	←	RADIO BEARER RELEASE	SS releases the PS domain RAB and changes compressed mode method to SF/2.
16	→	RADIO BEARER RELEASE COMPLETE	The UE acknowledges the release of the RAB and the compressed mode method change.
17			The SS changes the power of the cells according to column T5 in table 8.4.1.42-1.
18	→	MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.

Specific Message Content

All messages shall use the same content as defined in [9] TS 34.108 clause 9, with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION MESSAGE (Step 1)

Information Element	Value/Remark
Activation time	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
New DSCH-RNTI	Not Present
RRC State indicator	CELL_DCH
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	Not Present
Downlink counter synchronisation info	Not Present
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE *channel requirement*	Not Present

CHOICE *mode*	FDD
- Downlink PDSCH information	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	Not Present
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	0
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Not Present
Downlink information for each radio link	Not Present

MEASUREMENT CONTROL (Step 3)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	2 inter-frequency cells
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	UARFCN for the uplink corresponding to f_2
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	

- Primary Scrambling Code	Scrambling code 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	5
- Frequency info	
- UARFCN uplink (Nu)	UARFCN for the uplink corresponding to f_3
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	Not present
- Primary Scrambling Code	Scrambling code 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting
- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-70 dBm
- W used frequency	0.0
- Hysteresis	1.0 dB
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-65 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256

MEASUREMENT REPORT (Step 5,14)

Information Element	Value/Remark
Message Type	
Integrity check info	

- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 (Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 (Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3

PAGING TYPE 2 (Step 5a)

Use the same message type found in TS 34.108 clause 9.

RADIO BEARER SETUP (Step 6)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Speech to CELL_DCH from CELL_DCH in CS", with the following modifications:

Information Element	Value/Remark

- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)
- Downlink compressed mode method	SF/2(or not sent, depending on the UE capability)
- Uplink compressed mode method	SF/2(or not sent, depending on the UE capability)
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present

MEASUREMENT REPORT (Step 9,18)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 or f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 or f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the

	downlink corresponding to f_2 or f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 or f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 or f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)

RADIO BEARER SETUP (Step ~~6~~11)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following modifications:

Information Element	Value/Remark

- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present

RADIO BEARER RELEASE (Step 15)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following modifications:

Information Element	Value/Remark
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)
- Downlink compressed mode method	SF/2(or not sent, depending on the UE capability)
- Uplink compressed mode method	SF/2(or not sent, depending on the UE capability)
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present

8.4.1.42.5 Test Requirement

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the downloading of compressed mode parameters that were included in the PHYSICAL CHANNEL RECONFIGURATION message of step 1.

After step 4, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. That message shall only include cell 4 within the IE event results.

After step 6, the UE shall send a RADIO BEARER SETUP COMPLETE message to the SS to acknowledge the establishment of the RAB and the change of compressed mode method that were included in the RADIO BEARER SETUP message of step 6.

After step 8, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3.

After step 11, the UE shall send a RADIO BEARER SETUP COMPLETE message to acknowledge the establishment of the RAB and the compressed mode method change that were included in the RADIO BEARER SETUP message of step 11.

After step 13, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. That message shall only include cell 4 within the IE event results.

After step 15, the UE shall send a RADIO BEARER RELEASE COMPLETE message to acknowledge the release of the RAB and the compressed mode method change that were included in the RADIO BEARER RELEASE message of step 15.

After step 17, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3.

8.4.1.43 Measurement Control and Report: Compressed Mode Reconfiguration

8.4.1.43.1 Definition

8.4.1.43.2 Conformance requirement

If variable INVALID_CONFIGURATION has value FALSE after UE has performed the checks above, the UE shall:

1> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag") in the variable TGPS_IDENTITY):

2> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive" at the frame, indicated by IE "Activation time" (see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

2> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

~~3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive".~~

NOTE1: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

NOTE2: The deactivation of pattern sequences only occurs as a result of RRC messages received by the UE, i.e. the UE does not set the "Current TGPS Status Flag" to "inactive" after the final gap of a finite length pattern sequence.

1> update each pattern sequence to the variable TGPS_IDENTITY according to the IE "TGPSI";

1> update into the variable TGPS_IDENTITY the configuration information defined by IE group" transmission gap pattern sequence configuration parameters ";

1> after the instant in which the message is to be executed, as specified in subclause 8.6.3.1:

2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in the variable TGPS_IDENTITY is set to "activate" at the time indicated by IE "TGCFN"; and

2> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

NOTE1: If the pattern is activated with a message that includes the IE "Activation time", and if the CFN value indicated by the IE "Activation Time" and the CFN value indicated by the TGCFN are included in the same TTI (but not at the TTI boundary) common to all the transport channels that are multiplexed onto the reference CCTrCh (as defined in subclause 8.6.3.1), and if the CFN value indicated by the TGCFN is equal or higher than the CFN value indicated by the IE "Activation Time" (as defined in subclause 8.6.3.1) value, the UE behaviour is not specified.

NOTE2: If the pattern is activated with a message used to perform timing re-initialised hard handover, the UE can start evaluating the activation of the pattern (i.e. compare the value of the CFN in the new configuration with the value of the TGCFN) at any time between the message activation time and the completion of the synchronisation procedure A.

2> if the IE "DPCH compressed mode info" is included in a message used to perform a Hard Handover with change of frequency (see subclause 8.3.5); or

2> if the IE "DPCH compressed mode info" is included in a message used to transfer the UE from Cell_FACH to Cell_DCH, and the cell in which the UE transited from CELL_FACH state is not included in the active set for the CELL_DCH state (see subclause 8.4.1.7.2):

3> not begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> else:

3> begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> begin the inter-RAT measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":

3> start the concerned pattern sequence immediately at that CFN.

~~1> after the new configuration has been taken into use:~~

~~2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" in the variable TGPS_IDENTITY is set to "activate" at the time indicated by IE "TGCFN"; and~~

~~2> begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;~~

~~2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":~~

~~3> start the concerned pattern sequence immediately at that CFN.~~

1> monitor if the parallel transmission gap pattern sequences create an illegal overlap, and in case of overlap, take actions as specified in subclause 8.2.11.2.

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is not included, the UE shall:

1> if, as the result of this message, UE will have more than one transmission gap pattern sequence with the same measurement purpose active (according to IEs "TGMP" and "Current TGPS Status Flag" in variable TGPS_IDENTITY):

2> set the variable CONFIGURATION_INCOMPLETE to TRUE.

1> if there is any pending "TGPS reconfiguration CFN" or any pending "TGCFN":

2> the UE behaviour is unspecified.

1> if pattern sequence corresponding to IE "TGPSI" is already active (according to "Current TGPS Status Flag" in the variable TGPS_IDENTITY):

2> if the "TGPS Status Flag" in this message is set to "deactivate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use;

3> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "inactive" at the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

2> if the "TGPS Status Flag" in this message is set to "activate" for the corresponding pattern sequence:

3> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time"(see subclause 8.6.3.1) received in this message, when the new configuration received in this message is taken into use.

NOTE1: The temporary deactivation of pattern sequences for which the status flag is set to "activate" can be used by the network to align the timing of already active patterns with newly activated patterns.

NOTE2: The deactivation of pattern sequences only occurs as a result of RRC messages received by the UE, i.e. the UE does not set the "Current TGPS Status Flag" to "inactive" after the final gap of a finite length pattern sequence.

1> after the instant in which the message is to be executed, as specified in subclause 8.6.3.1:

2> activate the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate" at the time indicated by IE "TGCFN"; and

NOTE1: If the pattern is activated with a message that includes the IE "Activation time", and if the CFN value indicated by the IE "Activation Time" and the CFN value indicated by the TGCFN are included in the same TTI (but not at the TTI boundary) common to all the transport channels that are multiplexed onto the reference CCTrCh (as defined in subclause 8.6.3.1), and if the CFN value indicated by the TGCFN is equal or higher than the CFN value indicated by the IE "Activation Time" (as defined in subclause 8.6.3.1) value, the UE behaviour is not specified.

NOTE2: If the pattern is activated with a message used to perform timing re-initialised hard handover, the UE can start evaluating the activation of the pattern (i.e. compare the value of the CFN in the new configuration with the value of the TGCFN) at any time between the message activation time and the completion of the synchronisation procedure A.

2> set the "Current TGPS Status Flag" for this pattern sequence in the variable TGPS_IDENTITY to "active".

2> if the IE "DPCH compressed mode info" is included in a message used to perform a Hard Handover with change of frequency (see subclause 8.3.5); or

2> if the IE "DPCH compressed mode info" is included in a message used to transfer the UE from Cell_FACH to Cell_DCH, and the cell in which the UE transited from CELL_FACH state is not included in the active set for the CELL_DCH state (see subclause 8.4.1.7.2):

3> not begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> else:

3> begin the inter-frequency measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence.

2> begin the inter-RAT measurement reporting corresponding to the pattern sequence measurement purpose of each activated pattern sequence;

2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":

3> start the concerned pattern sequence immediately at that CFN.

~~1> after the new configuration has been taken into use:~~

~~2> activate, at the time indicated by IE "TGCFN", the stored pattern sequence corresponding to each IE "TGPSI" for which the "TGPS status flag" is set to "activate"; and~~

~~2> begin the inter-frequency and/or inter-RAT measurements corresponding to the pattern sequence measurement purpose of each activated pattern sequence;~~

~~2> if the new configuration is taken into use at the same CFN as indicated by IE "TGCFN":~~

~~3> start the concerned pattern sequence immediately at that CFN.~~

For transmission gap pattern sequences stored in variable TGPS_IDENTITY, but not identified in IE "TGPSI" (either due to the absence of the IE "DPCH compressed mode info" in the received message or due to not receiving the corresponding TGPSI value in the IE "DPCH compressed mode info"), the UE shall:

1> if the received message implies a timing re-initialised hard handover (see subclause 8.3.5.1):

2> deactivate such transmission gap pattern sequences at the beginning of the frame, indicated by IE "Activation time" (see subclause 8.6.3.1) received in this message; and

2> set IE "Current TGPS Status Flag" in corresponding UE variable TGPS_IDENTITY to 'inactive'.

1> if the received message not implies a timing re-initialised hard handover (see subclause 8.3.5.1):

2> continue such transmission gap pattern sequence according to IE "Current TGPS Status Flag" in the corresponding UE variable TGPS_IDENTITY.

Uplink and downlink compressed mode methods are described in [27]. For UL "higher layer scheduling" compressed mode method and transport format combination selection, see [15].

Reference

3GPP TS 25.331 clause 8.6.6.15.

8.4.1.43.3 Test purpose

To confirm that the UE supports de- activation of compressed mode included in a RADIO BEARER SETUP message.

To confirm that the UE supports reconfiguration of transport channel parameters (rate reduction PS RAB) and change of compressed mode method included in a TRANSPORT CHANNEL RECONFIGURATION message.

To confirm that the UE supports change of compressed mode included in a RADIO BEARER RELEASE message.

To confirm that the UE supports reconfiguration of transport channel parameters (rate ~~reduction~~ increase PS RAB) without performing hard handover included in a TRANSPORT CHANNEL RECONFIGURATION message.

8.4.1.43.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1 on frequency f_1, cell 4 on frequency f_2 and cell 5 on frequency f_3.

UE: "CS-DCCH + DTCH_DCH" (state 6-9) as specified in clause 7.4 of TS 34.108. ~~Ciphering shall be activated.~~

This test case applies only for UEs requiring compressed mode to perform inter- frequency measurements and supporting both PS and CS domains.

Test Procedure

Table 8.4.1.43-1 illustrates the downlink power to be applied for the 3 cells, as well as the frequency and scrambling code for each cell.

Table 8.4.1.43-1a

Parameter	Unit	Cell 1					
Frequency		f_1					
Scrambling code		Scrambling code 1					
		T0	T1	T2	T3	T4	T5
CPICH Ec	dBm/3.84 MHz	-60	-70	-70	-60	-70	-70

Table 8.4.1.43-1b

Parameter	Unit	Cell 4						Cell 5					
Frequency		f_2						f_3					
Scrambling code		Scrambling code 3						Scrambling code 2					
		T0	T1	T2	T3	T4	T5	T0	T1	T2	T3	T4	T5
CPICH Ec	dBm/3.84 MHz	-95	-60	-60	-95	-60	-60	-95	-95	-60	-95	-95	-60

The UE is initially in CELL_DCH, and has only cell 1 in its active set.

Next, SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to download compressed mode parameters in the UE without activating compressed mode. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

The SS then sets up inter-frequency measurements (event 2b) and activates compressed mode, by sending a MEASUREMENT CONTROL message to the UE.

The SS waits for 2560 ms for the UE to activate compressed mode.

The test operator is prompted to setup a PS call. The SS establishes a PS domain RAB and de-activates compressed mode, by sending a RADIO BEARER SETUP message on DCCH using AM-RLC. The UE shall answer with a RADIO BEARER SETUP COMPLETE message.

At instant T1, the downlink power is changed according to what is shown in table 8.4.1.43-1. The SS shall then verify that the UE does not transmit a MEASUREMENT REPORT message.

Next the SS downloads compressed mode parameters and activates compressed mode (using HLS method) by sending a PHYSICAL CHANNEL RECONFIGURATION message on DCCH using AM-RLC. The UE shall answer with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Next, SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to reconfigure transport channel parameters (rate reduction PS RAB) and to change compressed mode method (to SF/2). The UE shall answer with a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message.

At instant T2, the downlink power is changed according to what is shown in table 8.4.1.43-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

At instant T3, the downlink power is changed according to what is shown in table 8.4.1.43-1.The increased quality of the used frequency should result in clearing of the concerning TRIGGERED_2B_EVENT.

Next, SS transmits a RADIO BEARER RELEASE message to release the CS domain RAB and change compressed mode method (from SF/2 to HLS). The UE shall answer with a RADIO BEARER RELEASE COMPLETE message.

At instant T4, the downlink power is changed according to what is shown in table 8.4.1.43-1. Frequency f_2 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Next, SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to reconfigure transport channel parameters (rate increase PS RAB) ñ without performing hard handover. The UE shall answer with a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message.

At instant T5, the downlink power is changed according to what is shown in table 8.4.1.43-1. Frequency f_3 shall then trigger event 2b, and the UE shall transmit a MEASUREMENT REPORT message to the SS.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	SS downloads compressed mode parameters (using SF/2 method) without activating compressed mode.
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of compressed mode parameters.
3	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE and activates compressed mode.
3a				SS waits for 2560 ms.
3b	→		INITIAL DIRECT TRANSFER (SERVICE REQUEST)	GMM (Session setup is initiated for multi call from UE side).
3c	←		DOWNLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING REQUEST)	GMM
3d	→		UPLINK DIRECT TRANSFER (AUTHENTICATION AND CIPHERING RESPONSE)	GMM
3e	←		SECURITY MODE COMMAND	
3f	→		SECURITY MODE COMPLETE	
3g	→		UPLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT REQUEST)	SM
4	←		RADIO BEARER SETUP	SS establishes PS domain RAB and de- activates compressed mode.
5	→		RADIO BEARER SETUP COMPLETE	The UE acknowledges the establishment of the RAB and the de- activation of compressed mode
5a	←		DOWNLINK DIRECT TRANSFER (ACTIVATE PDP CONTEXT ACCEPT)	SM

6			The SS changes the power of the cells according to column T1 in table 8.4.1.43-1.
7			SS verifies that the UE does not transmit a MEASUREMENT REPORT message to the SS.
8	←	PHYSICAL CHANNEL RECONFIGURATION	SS downloads compressed mode parameters (using HLS method) and activates compressed mode.
9	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the downloading of compressed mode parameters and the activation of compressed mode.
10	→	MEASUREMENT REPORT	Frequency f2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
11	←	TRANSPORT CHANNEL RECONFIGURATION	SS reconfigures transport channel parameters (rate reduction PS RAB) and changes compressed mode method to SF/2. Rate should be reduced to 0 kbps ñ no PS RAB room left to use for gap.
12	→	TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the transport channel reconfiguration and the change of compressed mode method
13			The SS changes the power of the cells according to column T2 in table 8.4.1.43-1.
14	→	MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
15			The SS changes the power of the cells according to T3 in table 8.4.1.43-1 (so the UE can trigger event 2b again for both frequencies).
16	←	RADIO BEARER RELEASE	SS releases the CS domain RAB ~~(speech)~~ and changes compressed mode method to HLS.
17	→	RADIO BEARER RELEASE COMPLETE	The UE acknowledges the release of the RAB and the compressed mode method change.

18			The SS changes the power of the cells according to column T4 in table 8.4.1.43-1.
19	→	MEASUREMENT REPORT	Frequency f_2 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.
20	←	TRANSPORT CHANNEL RECONFIGURATION	SS reconfigures transport channel parameters (rate increase PS RAB) ñ without performing hard handover. ~~SS includes TGCFNs for compressed mode.~~
21	→	TRANSPORT CHANNEL RECONFIGURATION COMPLETE	The UE acknowledges the transport channel parameters change.
22			The SS changes the power of the cells according to column T5 in table 8.4.1.43-1.
23	→	MEASUREMENT REPORT	Frequency f_3 triggers event 2b in the UE, which sends a MEASUREMENT REPORT message to the SS.

Specific Message Content

All messages shall use the same content as defined in [9] TS 34.108 clause 9, with the following exceptions:

PHYSICAL CHANNEL RECONFIGURATION MESSAGE (Step 1)

Information Element	Value/Remark
Activation time	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
New DSCH-RNTI	Not Present
RRC State indicator	CELL_DCH
UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	Not Present
Downlink counter synchronisation info	Not Present
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE *channel requirement*	Not Present
CHOICE *mode*	FDD
- Downlink PDSCH information	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	Not Present
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7

- TGL2	Not Present
- TGD	undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)
- Downlink compressed mode method	SF/2(or not sent, depending on the UE capability)
- Uplink compressed mode method	SF/2(or not sent, depending on the UE capability)
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Not Present
Downlink information for each radio link	Not Present

MEASUREMENT CONTROL (Step 3)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	2 inter-frequency cells
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	UARFCN for the uplink corresponding to f_2
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Scrambling code 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Inter-frequency cell id	5
- Frequency info	
- UARFCN uplink (Nu)	UARFCN for the uplink corresponding to f_3
- UARFCN downlink (Nd)	UARFCN for the downlink corresponding to f_3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	Not present
- Primary Scrambling Code	Scrambling code 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE

- Cells for measurement	Not present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting cell status	Not present
- Measurement validity	
- UE State	CELL_DCH
- Inter-frequency set update	
- UE autonomous update	On with no reporting
- Non autonomous update mode	Not present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-70 dBm
- W used frequency	0.0
- Hysteresis	1.0 dB
- Time to trigger	100 ms
- Reporting cell status	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-65 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256

RADIO BEARER SETUP (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled "Packet to CELL_DCH from CELL_DCH in PS", with the following modifications:

Information Element	Value/Remark
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	De-activate
- TGCFN	Not present

PHYSICAL CHANNEL RECONFIGURATION MESSAGE (Step 8)

Information Element	Value/Remark
Activation time	Not Present
New U-RNTI	Not Present
New C-RNTI	Not Present
New DSCH-RNTI	Not Present
RRC State indicator	CELL_DCH

UTRAN DRX cycle length coefficient	Not Present
CN information info	Not Present
URA identity	Not Present
Downlink counter synchronisation info	Not Present
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE *channel requirement*	Not Present
CHOICE *mode*	FDD
- Downlink PDSCH information	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	Not Present
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	~~Deactivate~~Activate
- TGCFN	~~Not present~~(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Not Present
Downlink information for each radio link	Not Present

MEASUREMENT REPORT (Step 10,19)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	

-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 (Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 (Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3

TRANSPORT CHANNEL RECONFIGURATION (Step 11)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 [9], with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	Do not include TFCs with TF's other than TF0 for PS RAB
Added or Reconfigured UL TrCH information	Reconfigure PS RAB TFS, only include TF0
DL Transport channel information common for all transport channel	Do not include TFCs with TF's other than TF0 for PS RAB
Added or Reconfigured DL TrCH information	Reconfigure PS RAB TFS, only include TF0
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	Not Present
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)
- Downlink compressed mode method	SF/2(or not sent, depending on the UE capability)
- Uplink compressed mode method	SF/2(or not sent, depending on the UE capability)
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Not Present

MEASUREMENT REPORT (Step 14,23)

Information Element	Value/Remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	2
Measured Results	
- Inter-frequency measured results list	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 or f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent

- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 or f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- UTRA carrier RSSI	Check that this IE is absent
- Inter-frequency cell measurement results	Check that the value of this IE is set to 1 cell reported
- Cell measured results	
- Cell Identity	Check that this IE is absent
- SFN-SFN observed time difference	Check that this IE is absent
- Cell synchronisation information	Check that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- CPICH Ec/N0	Check that this IE is absent
- CPICH RSCP	Check that this IE is present
- Pathloss	Check that this IE is absent
Measured results on RACH	Check that this IE is absent
Additional measured results	Check that this IE is absent
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 or f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)
- Frequency info	
-CHOICE mode	FDD
- UARFCN uplink	Check that the value of this IE is set to UARFCN for the uplink corresponding to f_2 or f_3(Could be absent in case the duplex distance is the default duplex distance)
- UARFCN downlink	Check that the value of this IE is set to UARFCN for the downlink corresponding to f_2 or f_3
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code 3 (on f_2) or Scrambling code 2 (on f_3)

RADIO BEARER RELEASE (Step 16)

Use the same message sub-type found in TS 34.108 clause 9, which is entitled ~~"Packet to CELL_DCH from CELL_DCH in PS"~~ "Non speech in CS" or "Speech in CS", with the following modifications:

Information Element	Value/Remark

- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	Mode 0
- ITP	Mode 0
- CHOICE UL/DL Mode	UL and DL, UL only or DL only (depending on the UE capability)
- Downlink compressed mode method	HLS(or not sent, depending on the UE capability)
- Uplink compressed mode method	HLS(or not sent, depending on the UE capability)
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present

TRANSPORT CHANNEL RECONFIGURATION (Step 20)

The content of the TRANSPORT CHANNEL RECONFIGURATION message at this step is identical to the message sub-type titled "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 [9].

8.4.1.43.5 Test Requirement

After step 1, the UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the downloading of the compressed mode parameters without activating compressed mode that were included in the PHYSICAL CHANNEL RECONFIGURATION message of step 1.

After step 4, the UE shall send a RADIO BEARER SETUP COMPLETE message to acknowledge the establishment of the PS domain RAB and the de- activation of compressed mode that were included in the RADIO BEARER SETUP message of step 4.

After step 6, the UE shall not transmit a MEASUREMENT REPORT message.

After step 8, the UE shall send a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the downloading of the compressed mode parameters and the activation of compressed mode that were included in the PHYSICAL CHANNEL RECONFIGURATION message of step 8.

After step 9, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. That message shall only include cell 4 within the IE event results.

After step 11, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the change of transport channel parameters and the change of compressed mode method that were included in the TRANSPORT CHANNEL RECONFIGURATION message of step 11.

After step 13, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3.

After step 17, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message to the SS to acknowledge the release of the RAB and the change of compressed mode method that were included in the RADIO BEARER RELEASE message of step 17.

After step 18, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_2. That message shall only include cell 4 within the IE event results.

After step 20, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message to the SS to acknowledge the change of transport channel parameters that were included in the TRANSPORT CHANNEL RECONFIGURATION message of step 20.

After step 22, the UE shall transmit a MEASUREMENT REPORT message triggered by frequency f_3.

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘T1-041783

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **991** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 1 measurement test case 8.4.1.5
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	27/08/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘

1) With the power setting in table 8.4.1.5-1 at T0, at the UE CPICH_Ec/Io for cell B comes close to ñ20dB due to noise from other cells and cable losses.

   As per 34.121 section 8.7.2.1.1.2 tolerance for CPICH_Ec/Io is ±3dB and

   As per 25.133 section 8.1.2.2.1,

   A cell shall be considered detectable when

   - CPICH Ec/Io > -20 dB

   Thus UE may not be able to detect the Cell B.

   If the power level of the cell B is increased to ñ72dbm, CPICH_Ec/Io for Cell B will be well above ñ20 dB and hence UE will be able to detect the Cell.

2) When UE sends physical channel reconfiguration complete message (Step 8), the UE starts T305 timer. It should be made explicit in the test case description that this is the point at which the SS starts an equivalent wait timer.

Summary of change: ⌘

1) In the table 8.4.1.5-1 Power level of Cell B at instant T0 is changed from ñ 75 dBm to ñ72 dBm.

2) In the test procedure and at Step 8 of the expected sequence added a comment mentioning SS Starts T305 after reception of the PHYSICAL

		CHANNEL RECONFIGURATION COMPLETE message.
Consequences if not approved:	⌘	Test Case may fail a conformant UE.

Clauses affected:	⌘	8.4.1.5			
Other specs Affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects R99, Rel-4 and Rel-5 UEs.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

8.4.1.5 Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state (FDD)

8.4.1.5.1 Definition

8.4.1.5.2 Conformance requirement

Upon transition from CELL_DCH to CELL_FACH/CELL_PCH/URA_PCH state, the UE shall:

1> stop intra-frequency type measurement reporting;

1> if the transition is due to a reconfiguration message which included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selects a cell other than that indicated by this IE; or

1> if the transition is due to a reconfiguration message which does not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD); or

1> if the transition is not due to a reconfiguration message:

2> delete the measurements of type intra-frequency associated with the variable MEASUREMENT_IDENTITY.

1> begin monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11 in [8] TS 25.331).

Upon transition from CELL_FACH to CELL_DCH state, the UE shall:

1> retrieve each set of measurement control information of measurement type "intra-frequency" stored in the variable MEASUREMENT_IDENTITY;

1> if the IE "measurement validity" for a measurement has been assigned the value "CELL_DCH:

2> resume the measurement reporting.

1> if no intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> continue monitoring the list of neighbouring cells assigned in the IE "intra-frequency cell info list" in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11 in [8] TS 25.331);

2> if the IE "intra-frequency measurement reporting criteria" was included in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11 in [8] TS 25.331):

3> send the MEASUREMENT REPORT message when reporting criteria in IE "Reporting information for state CELL_DCH" are fulfilled.

Reference

3GPP TS 25.331, clause 8.4.1.6.1, 8.4.1.7.1

8.4.1.5.3 Test Purpose

1. To confirm that the UE stops performing intra-frequency measurement reporting specified in a MEASUREMENT CONTROL message, when it moves from CELL_DCH state to CELL_FACH state.

2. To confirm that the UE reads the System Information Block type 11 or 12 messages when it enters CELL_FACH state from CELL_DCH state, and starts to monitor the cells listed in the IE "intra-frequency cell info list".

3 To confirm that the UE performs measurements on uplink RACH transmissions and appends the measured results in RACH messages, when it receives IE "intra-frequency reporting quantity for RACH reporting" and IE "Maximum number of reported cells on RACH" in the System Information Block type 11 or 12 messages.

4. To confirm that the UE applies the reporting criteria in IE "intra-frequency reporting criteria" in System Information Block Type 11 or 12 messages following a state transition from CELL_FACH to CELL_DCH, if no intra-frequency measurements applicable to CELL_DCH are stored.

8.4.1.5.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1 and cell 2 are active, while cell 3 is switched off..

UE: PS-DCCH+DTCH_DCH (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108.

Specific Message Contents

For system information block 11 of Cell 1 (gives IE's which are different from defaults given in 34.108 subclause 6.1) to be transmitted before idle update preamble.

System Information Block type 11

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
SIB12 indicator	FALSE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Cells for measurement	Not Present
-Intra-frequency measurement quantity	Not Present
-Intra-frequency reporting quantity for RACH reporting	Not Present
-Maximum number of reported cells on RACH	Not Present
-Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

Test Procedure

Table 8.4.1.5-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1 are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.5-1

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1		Ch. 1	
CPICH Ec	dBm/ 3.84 MHz	-60	-60	-72 ~~-75~~	-85	-122	-70

The UE is initially in CELL_DCH state. The System Information Block type 11 message is modified compared to the default message contents, in order to prevent the reporting of "Cell synchronisation information". No measurement to be applied by the UE in CELL_DCH state is specified in any of the System Information Block type 11 or 12 messages.

SS sends a MEASUREMENT CONTROL message to UE. In this message, the SS requests the establishment of an intra-frequency measurement for the measurement of cell 2's CPICH RSCP. At the same time, reporting of CPICH RSCP values of active set cells and monitored set cells are requested with the reporting criteria set to "periodic reporting" and "reporting interval" set to 16 seconds. The UE shall start transmitting MEASUREMENT REPORT messages at 16 seconds interval corresponding to the requested reporting event.
SS transmits PHYSICAL CHANNEL RECONFIGURATION message to move the UE to CELL_FACH. After receiving this message, the UE shall reconfigure itself and reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on RACH. SS starts T305 timer and SS monitors the uplink channels to verify that no MEASUREMENT REPORT messages are received.

SS reconfigures itself according to the settings in columns marked "T1" in table 8.4.1.5-1. SS transmits System Information Block type 12 messages in cell 1, which include cell 3 into the IE "intra-frequency cell info list" and modifies SIB11 to indicate that SIB12 is now being broadcast. IEs "Intra-frequency reporting quantity for RACH Reporting" and IE "Maximum number of Reported cells on RACH" are also specified in the System Information Type 12 messages. Event type 1a reporting criterion is specified for intra-frequency measurements. SS transmit SYSTEM INFORMATION CHANGE INDICATION message to UE. SS waits until T305 has expired. The UE shall respond with a CELL UPDATE message, which comprises IE "Measured results on RACH" to report the readings of CPICH RSCP for cell 1 and cell 3. SS replies with CELL UPDATE CONFIRM message on the downlink DCCH. This message does not change the physical resources nor allocate any new RNTI identities. SS transmits PHYSICAL CHANNEL RECONFIGURATION message again, and configures dedicated physical channel for both uplink and downlink directions. The UE shall send PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and return to CELL_DCH state. SS listens to the uplink DCCH for MEASUREMENT REPORT messages.

SS shall receive the MEASUREMENT REPORT messages at 500 milliseconds interval.

SS verifies that it includes CPICH RSCP values of the cells 1and 3 in IE "Cell measured results" and the triggering of event '1a' on cell 3 in IE "Event results".

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is in PS-DCCH+DTCH_DCH (state 6-10) in cell 1.
2			Void	
3			Void	
4			Void	
5	←		MEASUREMENT CONTROL	SS requests for measurement of cell 2's CPICH RSCP value and reporting of CPICH RSCP values of active cells and monitored set cells.
6	→		MEASUREMENT REPORT	UE shall send periodic report at 16 seconds interval.
7	←		PHYSICAL CHANNEL RECONFIGURATION	SS moves the UE to CELL_FACH state.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state. SS starts T305 timer.
9	←		Master Information Block System Information Block type 11, 12	SS reconfigures itself according to the settings stated in column "T1" of table 8.4.1.5-1. SIB 11 is modified to indicate that SIB12 is now broadcast and to add cell 2 as a neighbour cell. SIB 12 indicates that cell 3 is included in the IE "intra-frequency cell info list". SS waits for 1 minute and verifies that no MEASUREMENT REPORT messages are detected on the uplink.
10	←		SYSTEM INFORMATION CHANGE INDICATION	SS waits until T305 has expired.
11	→		CELL UPDATE	UE shall transmit this message with measured results on RACH channels for cell 1 and cell 3 present in this message.
12	←		CELL UPDATE CONFIRM	No changes in physical resource allocation and RNTI identities.
13	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures dedicated physical channels.
14	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall transit to CELL_DCH state.
15	→		MEASUREMENT REPORT	Repeated at 500 milliseconds interval

Specific Message Content

MEASUREMENT CONTROL (Step 5)

Information Element	Value/remark
Measurement Identity	5
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical Reporting
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Measurement validity	Not present
- CHOICE report criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 6)

Information Element	Value/remark
Measurement identity	Check to see if set to 5
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measured results list	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured result list	Check to see if this IE is absent
Event results	Check to see if this IE is absent

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_FACH from CELL_DCH in PS)"

MASTER INFORMATION BLOCK (Step 9)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/Remarks
MIB Value Tag	2

System Information Block type 11 (Step 9)

Information Element	Value/remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	
- $Qoffset_{s,n}$	0 dB
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin	-20dB
- Qrxlevmin	-115dBm
- Cells for measurement	Not Present
-Intra-frequency measurement quantity	Not Present
-Intra-frequency reporting quantity for RACH reporting	Not Present
-Maximum number of reported cells on RACH	Not Present
-Reporting information for state CELL_DCH	Not Present
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 9)

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	6
- Intra-frequency cell cells	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	
- $Qoffset_{s,n}$	0dB
- Maximum allowed UL TX power	0dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin, Qrxlevmin	-20dB, -115dBm
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE mode	FDD
- Reporting quantity	CPICH RSCP
- Maximum number of reported cells on RACH	Current cell + best neighbour
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting range constant	14.5dB
- Cells forbidden to affect reporting	Not present

- W	0.0
- Hysteresis	1.0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	7
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting Interval	500 milliseconds
- Reporting cell status	
- CHOICE *reported cell*	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not present

SYSTEM INFORMATION CHANGE INDICATION (Step 10)

Information Element	Value/Remarks
BCCH modification info	
- MIB Value tag	2

CELL UPDATE (Step 11)

Information Element	Value/remark
U-RNTI	Check to see if set to the same value assigned during the execution of procedure P3 or P5.
START list	Checked to see if this IE is present
AM_RLC error indication(RB2, RB3 or RB4)	FALSE
AM_RLC error indication(RB>4)	FALSE
Cell update cause	Check to see if it is set to "Periodical cell update"
Failure case	Check to see if it is absent
Measured results on RACH	
- Measurement result for current cell	
- CHOICE measurement quantity	Check to see if set to "CPICH RSCP"
- CPICH RSCP	Check to see if it is present
- Measurement results for monitored cells	
- SFN-SFN observed time difference	Check to see if it is absent
- Primary CPICH info	
- Primary scrambling code	Check to see if the same as cell 3's code.
- CHOICE measurement quantity	Check to see if set to "CPICH RSCP"
- CPICH RSCP	Check to see if it is present

PHYSICAL CHANNEL RECONFIGURATION (Step 13)

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled "(Packet to CELL_DCH from CELL_FACH in PS)".

MEASUREMENT REPORT (Step 15)

Information Element	Value/remark
Measurement identity	Check to see if set to 6
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results list	
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Event results	Check to see if this set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1a'
- Cell measurement event results	
- CHOICE Mode	Check to see if set to 'FDD'
- Primary CPICH info	
- Primary Scrambling Code	Check to see if set to the same code for cell 3

8.4.1.5.5 Test Requirement

After step 5, the UE shall start to transmit MEASUREMENT REPORT messages at 16 seconds interval. The message shall contain IE "measured result" to report cell 2's CPICH RSCP value.

After step 8, the UE shall not send any MEASUREMENT REPORT messages containing reporting quantities requested in MEASUREMENT CONTROL messages in step 5.

After step 10, the UE shall perform a cell update procedure and transmit a CELL UPDATE message. In this message, measured values CPICH RSCP for cell 1 and cell 3 shall be included in the IE "measured results on RACH".

After step 14, the UE shall apply the intra-frequency measurement reporting criteria" received in System Information Block type 12 messages of step 9. It shall send MEASUREMENT REPORT messages at 500 milliseconds interval. In these messages, triggering of event '1a' shall be reported in IE "Event results" with IE "Primary CPICH info" containing the primary scrambling code for cell 3.

The message shall contain IE "measured result" to report CPICH RSCP values of cell 1and 3.

<< END OF MODIFIED SECTION >>

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th Nov, 2004

Tdoc ⌘T1-041784

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **992** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to prose for Package 2 MM test case 9.4.2.1
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	26/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘

As per 34.123-1 section 9.4.2.1.4 expected sequence:
Test steps 1 to 40 should be repeated 3 times for cause "IMSI unknown in HLR", "Illegal MS" or "Illegal ME".

In fact the UE will not perform the ROUTING AREA UPDATE at Step 2 when Steps 1 to 40 **are repeated with execution counter k = 2, 3** (i.e. for rejection causes "Illegal MS" and "Illegal ME"). However, Step 2 of the expected sequence states:

ìIf PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT when it is sent with the cause ìIllegal MSî or ìIllegal MEî.î

Thus, the prose description is incorrect.

The reason that the ROUTING AREA UPDATE is not performed on the subsequent executiions is due to the fact that at Step 31 of the expected Sequence it is mentioned that "The subsequent GMM attach should be rejected if received in the PS mode". Thus, when the UE attempts GMM Attach, the SS will send Attach Reject with cause set to ìGPRS Services not allowedî as per clause 9 of 34.123-1. This reject cause will make the USIM invalid for GPRS services until the USIM is removed or the UE is Switched off, which will not happen before the sequence reaches step 2 in executions 2 and 3 (i.e. for rejection causes "Illegal MS" and "Illegal ME")

The CR aligns the prose with the currently approved TTCN.

Summary of change: ⌘ At Step 2 of the expected sequence removed the comment relating to ROUTING AREA UPDATE REQUEST for causes ìIllegal MSî or ìIllegal MEî.

Consequences if not approved:	⌘	The test case prose will remain inconsistent with the approved TTCN.

Clauses affected:	⌘	9.4.2.1			
		Y	**N**		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects R99, Rel-4 and Rel-5 UEs			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

9.4.2.1 Location updating / rejected / IMSI invalid

9.4.2.1.1 Definition

9.4.2.1.2 Conformance requirement

1) If the network rejects a location updating from the UE with the cause "IMSI unknown in HLR", "Illegal MS" or "Illegal ME" the UE shall:

   1.1 not perform normal location updating;

   1.2 not perform periodic location updating;

   1.3 not respond to paging with IMSI;

   1.4 not respond to paging with TMSI;

   1.5 reject any request from CM entity for MM connection other than for emergency call;

   1.6 not perform IMSI detach if it is switched off or has its power source removed.

2) If the network rejects a location updating from the UE with the cause "IMSI unknown in HLR", "Illegal MS" or "Illegal ME" the UE, if it supports emergency speech call, shall accept a request for an emergency call by sending a RRC CONNECTION Request message with the establishment cause set to "emergency call" and include an IMEI as mobile identity in the CM SERVICE REQUEST message.

3) If the network rejects a location updating from the UE with the cause "IMSI unknown in HLR", "Illegal MS" or "Illegal ME" the UE shall delete the stored LAI, CKSN and TMSI.

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.1.3 Test purpose

To test the behaviour of the UE if the network rejects the location updating of the UE with the cause "IMSI unknown in HLR", "illegal MS" or "Illegal ME".

9.4.2.1.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas of the same PLMN;
  - IMSI attach/detach is allowed in both cells;
  - the T3212 time-out value is 1/10 hour in both cells.
- User Equipment:
  - the UE has valid TMSI(= TMSI1), CKSN and CK, IK. It is "idle updated" on cell A.

Related ICS/IXIT statement(s)

USIM removal possible while the UE is powered Yes/No.

Switch off on button Yes/No.

Support for emergency speech call Yes/No.

Test Procedure

The SS rejects a normal location updating with the cause value "IMSI unknown in HLR". The RRC CONNECTION is released. The SS checks that the UE has entered the state MM IDLE and the substate NO IMSI, i.e. does not perform normal location updating when a new cell of the same or another PLMN is entered, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls, does not perform IMSI detach if it is switched off or has its power source removed and deletes the stored LAI, CKSN and TMSI.

The test is repeated with cause value "Illegal MS" and with cause value "Illegal ME".

Expected sequence

The sequence is executed for execution counter k = 1, 2, 3.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". (see note)
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to "Registration". If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with cause ìGPRS services not allowedî when LOCATION UPDATING REJECT is sent with cause ìIMSI unknown in HLRî. ~~If PS mode: a ROUTING AREA UPDATE REQUEST should be rejected with the same cause as used in the LOCATION UPDATING REJECT when it is sent with the cause ìIllegal MSî or ìIllegal MEî.~~
3			Void	
4			Void	
5	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "LAI" = a, "Mobile Identity" = TMSI1
6	←		LOCATION UPDATING REJECT	"Reject cause" IE is "IMSI unknown in HLR" for k = 1, "Illegal MS" for k = 2, "Illegal ME" for k = 3.
7		SS		The SS releases the RRC Connection.
8			Void	
				The following messages are sent and shall be received on cell A.
9		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "non-suitable cell". (see note)
10		UE		The UE performs cell reselection according to procedure as specified in (this however is not checked until step 23). The UE shall not initiate an RRC connection establishment on cell A or on cell B.
11		SS		The SS waits at least 7 minutes for a possible periodic updating.
12		UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B.
13	←		PAGING TYPE 1	The UE is paged in cell A. "UE identity" IE contains IMSI. Paging Cause: Terminating Conversational Call.
14		UE		The UE shall ignore this message. This is verified during 3 s.
15	←		PAGING TYPE 1	The UE is paged in cell A. "UE identity" IE contains TMSI. Paging Cause: Terminating Conversational Call.
16		UE		The UE shall ignore this message. This is verified during 3 s.
17	UE			A MO CM connection is attempted.
18	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 30 s.
19	UE			If the UE supports emergency speech call (see ICS), it is made to perform an emergency call.
20		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUESTis set to "Emergency call".
This message is sent in cell A.				
21			Void	
22			Void	
23	→		CM SERVICE REQUEST	"CM service type": Emergency call establishment. "Mobile identity": type of identity is set to IMEI.
24	←		CM SERVICE ACCEPT	
25	→		EMERGENCY SETUP	

Step	Direction		Message	Comments
	UE	SS		
26	←		RELEASE COMPLETE	"Cause" = unassigned number.
27	SS			The SS releases the RRC connection.
28			Void	
29	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
30	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 3 s.
31	UE			Depending on what has been performed in step 29 the UE is brought back to operation. The subsequent GMM attach should be rejected if received in the PS mode.
32	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST is set to "Registration".
33			Void	
34			Void	
35	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "mobile station classmark 1" as given by the ICS, "Mobile Identity" = IMSI, "LAI" = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE).
36	←		AUTHENTICATION REQUEST	Assign a CKSN
37	→		AUTHENTICATION RESPONSE	
37a	SS			The SS starts integrity protection.
38	←		LOCATION UPDATING ACCEPT	"Mobile Identity" = TMSI.
39	→		TMSI REALLOCATION COMPLETE	
40	SS			The SS releases the RRC connection.
41			Void	
NOTE: The definitions for "Serving cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.2.1.5 Test requirement

1) 1.1 At step 10 the UE shall not perform normal location updating.

   1.2 At step 12 the UE shall not perform periodic location updating.

   1.3 At step 14 the UE shall not respond to paging with IMSI.

   1.4 At step 16 the UE shall not respond to paging with TMSI.

   1.5 At step 18 the UE shall reject a MO CM connection.

   1.6 At step 30 the UE shall not initiate an RRC connection establishment on cell A or on cell B.

2) At step 20 the UE shall accept a request for an emergency call with the establishment cause set to "Emergency call".

3) At step 35 the UE shall send a LOCATION UPDATING REQUEST message with the Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and the LAI IE set to "deleted LAI" on cell A.

<< END OF MODIFIED SECTION >>

3GPP TSG-T1 Meeting #25
Malta, Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041787

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1** **CR** 993 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections to MM Package 2 TC 9.4.9 revision of T1-041539.
Source:	⌘	Ericsson
Work item code:	⌘	TEI
Date:	⌘	1/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘
1. The initial conditions in clause 9.4.9.4 states that PLMN2 should be set as forbidden PLMN on the USIM. But this is only true when the TC starts, not during the initial registration. If a UE is equipped with a USIM according to the initial conditions during the registration it will fail the TC.

Changes in this revision compared to previous version marked in green.

Summary of change: ⌘
1. A clarification is added that the USIM parameters are only valid when the TC starts and not during the preamble for registration.

Consequences if not approved: ⌘ TC might fail a conformant UE.

Clauses affected: ⌘ 9.4.9

Other specs affected: ⌘

Y	N	
	X	Other core specifications
	X	Test specifications
	X	O&M Specifications

⌘

Other comments: ⌘ Affects Rel 99, Rel4 and Rel5 Ues.

How to create CRs using this form:
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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9.4.9 Location Updating / Accept, Interaction between Equivalent PLMNs and Forbidden PLMNs.

9.4.9.1 Definition

Test to verify that, before storing the 'equivalent PLMN list' received from the network during a Location Update, the UE removes any PLMN already included in the 'forbidden PLMN list'. Consequently the UE shall not select a PLMN Equivalent to the registered PLMN if it is included in the 'forbidden PLMN list' in the USIM.

9.4.9.2 Conformance requirement

The mobile station shall store the equivalent PLMN~~S~~s list, as provided by the network, except that any PLMN code that is already in the "forbidden PLMN list" shall be removed from the "equivalent PLMNs" list before it is stored by the mobile station.

References

TS 24.008, 4.4.4.6

9.4.9.3 Test purpose

To verify that the UE shall not select a forbidden PLMN even though it is included in the equivalent PLMN list provided by the network because forbidden PLMNs shall not be stored in the mobile's equivalent PLMN list.

9.4.9.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A, and B. Cell A belongs to PLMN1. Cell B belongs to PLMN2.

  NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
- User Equipment:
  - the UE is switched off;
  - the UE is in automatic PLMN selection mode.
  - the UE is equipped with a USIM containing default values~~, except for those listed below:~~
  - prior to performing the actual test procedure PLMN2 is set as forbidden PLMN, so that the USIM will contain the following information

USIM field	Priority	PLMN
EF_{FPLMN}	PLMN 2	

Related ICS/IXIT statement(s)

Switch off on button Yes/No.

Test procedure

Cells A and B are made available. When the UE is switched-on it will perform a normal location updating in Cell A, since Cell B belongs to a forbidden PLMN. The SS will respond sending a LOCATION UPDATING ACCEPT

message that includes PLMN2 in the equivalent PLMN list. However the UE shall not store PLMN 2 in its equivalent PLMN list as it is a forbidden PLMN. Therefore, when Cell A is made unavailable the UE will not select the only remaining cell (Cell B), remaining in limited service state.

Expected Sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell A
1		SS		Set the cell type of Cell A to the "Suitable neighbour cell". Set the cell type of Cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is switched on by either using the Power Switch or by applying power.
3		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4			Void	
5			Void	
6	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
6a		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	Equivalent PLMN List: PLMN 2
8		SS		The SS releases the RRC connection.
9			Void	
10		SS		Set the cell type of Cell A to the "non-suitable cell". (see note)
11		SS		The SS shall wait for 7 minutes during which no messages should be received.
NOTE: The definitions for "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.9.5 Test requirements

At step 11 the UE shall not perform a normal location updating in Cell B.

3GPP TSG T1 Meeting #24
Malta, 1st ñ 5th November 2004

T1-041795 ⌘

CR-Form-v7

CHANGE REQUEST

⌘ **TS 34.123-1 CR** 994 ⌘ **rev** - ⌘ Current version: **5.9.0** ⌘

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Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to TC 8.2.4.1a
Source:	⌘	Panasonic
Work item code:	⌘	TEI
Date:	⌘	01/11/04
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The remark to IE ìCTFCî in specific message content in step 1 is misleading. The remark in its current form seems to indicate that only highest CTFC is removed. The original intention is to remove CTFCs that use the highest rate TF for RAB.
Summary of change:	⌘	The remark has been revised to remove the highest rate TF of RAB instead.
Consequences if not approved:	⌘	The test may be incorrectly implemented.

Clauses affected:	⌘	8.2.4.1a			
Other specs affected:	⌘	Y	N	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.4.1a Transport channel reconfiguration (Transmission Rate Modification) from CELL_DCH to CELL_DCH of the same cell: Success

8.2.4.1a.1 Definition

8.2.4.1a.2 Conformance requirement

1. If the UE receives:

   - a TRANSPORT CHANNEL RECONFIGURATIONmessage; or

it shall:

1> if the UE will enter the CELL_DCH state from any state other than CELL_DCH state at the conclusion of this procedure:

2> perform the physical layer synchronisation procedure A as specified in TS 25.214;

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified in the following and perform the actions below.

The UE shall then:

1> enter a state according to TS 25.331 subclause 8.6.3.3.

Ö

2. If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent:

2> not change its current UL Physical channel configuration.

Ö

3. The UE shall transmit a response message as specified in TS 25.331 subclause 8.2.2.4, setting the information elements as specified below. The UE shall:

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the received message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

Ö

4. In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

5. If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

1> in addition, if the message was received in CELL_DCH state and the UE remains in CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> for each optional IE part of the IE "Downlink information for each radio link" that is not present:

3> do not change its current downlink physical channel configuration corresponding to the IE, which is absent, if not stated otherwise elsewhere.

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.6.4.

8.2.4.1a.3 Test purpose

To confirm that the UE reconfigures the transport channel configuration according to a TRANSPORT CHANNEL RECONFIGURATION message, which specifies a reconfiguration by changing the TFCS.

To confirm that the UE receives the RLC SDU and sends it according to the new UL TFCS.

8.2.4.1a.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_DCH_TEST_LOOP (state 6-10a) as specified in clause 7.4 of TS 34.108. The UL RLC_SDU size for the loopback scheme is set to the size correspondent to the maximum uplink TFS as indicated in RADIO BEARER SETUP message during radio bearer establishment procedure. The Contents of the Radio Bearer Setup message is specified in specific message contents.

Note : Transmission rate shall be set to the maximum rate for the UE during the radio bearer establishment procedure.

Test Procedure

The UE is in CELL_DCH state.

The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to modify the UL transmission rate which includes information about uplink TFCS to restrict the use of the highest rate TFCIs.

The UE shall reconfigure the new configuration and then transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

UL MAC restriction is imposed on the SS so that SS can restrict the use of highest rate TFCI in the uplink

Then the SS transmits a RLC_SDU whose size is the same as the UL RLC_SDU size for the loopback scheme. The UE receives this RLC_SDU and decode it according to the new TFCS.

The RLC_SDU is then looped backed to the SS. The SS should receive the expected data as a RLC_SDU exactly as the one transmitted to the UE.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
2a	←		DOWNLINK RLC SDU	
2b	→		UPLINK RLC SDU	RLC SDU sent back shall be the same as the one sent from the SS.
3			Void	
4			Void	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 1)

The contents of TRANSPORT CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
UL Transport channel information for all transport channels	Not Present
- PRACH TFCS	Not Present
- CHOICE mode	FDD
- TFC subset	
- UL DCH TFCS	
- CHOICE TFCI signalling	Normal
- TFCI Field 1 information	
- CHOICE TFCS representation	Complete reconfiguration
- TFCS complete reconfigure information	
- CHOICE CTFC Size	Number of bits used must be enough to cover all combinations of CTFC from TS34.108 clause 6.10.2.4 Parameter Set.
- CTFC information	This IE is repeated for TFC numbers and reference to TS34.108 clause 6.10.2.4 Parameter Set
- CTFC	Reference to TS34.108 clause 6.10.2.4 Parameter Set as defined in the RADIO BEARER SETUP message with highest rate ~~CTFC~~ TF of RAB removed.
- Power offset information	
- CHOICE Gain Factors	Computed Gain Factors(The last TFC is set to Signalled Gain Factors)
- Gain factor βc	11 (below 64 kbps) 9 (higher than 64 kbps) (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Gain factor βd	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
- Reference TFC ID	0
- CHOICE mode	FDD
- Power offset P p-m	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	Not Present

RADIO BEARER SETUP

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type titled as "Packet to CELL_DCH from CELL_DCH in PS" as found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RAB information for setup	
- RB information to setup	
- PDCP info	OMIT

8.2.4.1a.5 Test requirement

After step 1 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 2a the UE shall transmit a RLC_SDU that is same as the transmitted data from SS in step 2a on the radio access bearer.

3GPP TSG T1 Meeting #24
Malta, 1st ñ 5th November 2004

T1-041796 ⌘

CR-Form-v7

CHANGE REQUEST

⌘ **TS 34.123-1 CR** 995 ⌘ **rev** - ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to TC 8.2.6.44
Source:	⌘	Panasonic
Work item code:	⌘	TEI
Date:	⌘	01/11/04
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The UE must support ciphering. However it is optional in the case of network to apply ciphering. Hence the test cases in this CR have to be revised to allow both network applies ciphering and network does not apply ciphering cases to be tested. The radio link failure occurs in cell 2 instead of cell 1, hence the broadcasted SIB 1, which is different from the default one found in TS 34.108, should be broadcasted in cell 2 instead of cell 1.
Summary of change:	⌘	It is clarified that IE ìCiphering mode infoî shall be included in the PHYSICAL CHANNEL RECONFIGURATION message only if ciphering has been started before step 2. New ciphering configuration will be used by the UE if IE ìCiphering mode infoî is included in step 2. In the initial condition, the non-default SIB 1 shall be broadcasted in cell 2 instead of cell 1. Revision of T1-041620, The clarification on when the IE ìCiphering mode infoî should be included in PHYSICAL CHANNEL RECONFIGURATION message for CS domain testing only has been added.
Consequences if not approved:	⌘	Good UE may fail.

Clauses affected:	⌘	8.2.6.44

[Y] [N]

Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.6.44 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Failure (Radio link failure in new configuration)

8.2.6.44.1 Definition

8.2.6.44.2 Conformance requirement

<from sub-clause 8.2.2.14>

If the criteria for radio link failure is met in the new configuration during the reconfiguration procedure (i.e. while UE is waiting for RLC acknowledgement for a response message.) as specified in subclause 8.5.6, the UE shall:

1> if the received reconfiguration causes either:

- the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE; and/or
- the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:

2> perform the actions specified in subclause 8.2.2.12b.

<from sub-clause 8.2.2.12b>

If:

- a cell update procedure according to subclause 8.3.1 is initiated; and
- the received reconfiguration message causes either:
  - the IE "Reconfiguration" in the variable CIPHERING_STATUS to be set to TRUE; and/or
  - the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to be set to TRUE:

the UE shall:

1> release all radio resources;

1> indicate the release of the established signalling connections (as stored in the variable ESTABLISHED_SIGNALLING_CONNECTIONS) and established radio access bearers (as stored in the variable ESTABLISHED_RABS) to upper layers; and

1> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

1> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> clear the variable ESTABLISHED_RABS;

1> if the received reconfiguration message contained the IE "Ciphering mode info":

2> set the IE "Reconfiguration" in the variable CIPHERING_STATUS to FALSE; and

2> clear the variable RB_UPLINK_CIPHERING_ACTIVATION_TIME_INFO;

2> clear the variable SECURITY_MODIFICATION.

1> if the received reconfiguration message contained the IE "Integrity protection mode info":

2> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to FALSE; and

2> clear the variable INTEGRITY_PROTECTION_ACTIVATION_INFO.

1> enter idle mode;

1> perform the actions specified in subclause 8.5.2 when entering idle mode;

1> and the procedure ends.

NOTE: UTRAN should use RB Control messages to perform an SRNS relocation only in case of state transitions from CELL_DCH to CELL_DCH.

Reference

3GPP TS 25.331 clause 8.2.2, 8.6.3.4.

8.2.6.44.3 Test purpose

To confirm that the UE enters idle mode state when UE detects radio link failure after UE started using the new configuration but before receiving the RLC acknowledgement of the reconfiguration complete message.

8.2.6.44.4 Method of test

Initial Condition

System Simulator: 2 cells ñ Cell 1 and 2

UE: PS-DCCH+DTCH_DCH (state 6-10) or CS-DCCH+DTCH_DCH (state 6-9) or PS+CS-DCCH+DTCH_DCH (state 6-14) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Specific Message Contents

System Information Block type 1 of Cell ~~1~~ 2 to be transmitted before idle update preamble

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
- UE Timers and constants in connected mode - T313 - N313	 0 1

Test Procedure

Table 8.2.6.44

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Ch. 1			Ch. 1		
CPICH Ec (FDD)	dBm/3.84MHz	-60	-75	-60	-75	-60	OFF

Table 8.2.6.44 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_DCH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.44. The SS sends a PHYSICAL CHANNEL RECONFIGURATION message requesting the UE to do a handover combined with SRNS relocation. This message includes IE "RRC State Indicator" set to "CELL_DCH", IE ìDownlink counter synchronisation infoî, IE ìCiphering mode infoî and IE ìIntegrity protection mode infoî. UE shall reselect to cell 2 and SS verifies that the UE sends PHYSICAL CHANNEL RECONFIGURATION COMPLETE message. This message also includes a calculated new START value according to the formula ì$START_X'$ = MSB_{20} (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the new CK_X and IK_X from step 1}) + 2î, calculated IE îIntegrity Check Infoî using a new FRESH value as included in IE ìIntegrity protection initialisation numberî in IE ìIntegrity protection mode infoî in PHYSICAL CHANNEL RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration. On receiving PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, SS shall not send RLC acknowledgement to UE and the SS shall configure its downlink transmission power settings according to columns "T2" in table 8.2.6.44.

UE shall detect a radio link failure in cell 2 and enters idle mode in cell 1. SS then call for procedure C.1 to verify that UE is in idle mode in cell 1.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.6.44.
2	←		PHYSICAL CHANNEL RECONFIGURATION	If IE ìCiphering mode infoî is present in the SECURITY MODE COMMAND during initial condition set-up, this message is sent after last ciphering activation time has elapsed and there is no pending ciphering activation time. New integrity protection configuration is applied on DL SRB2. LAI and RAI of cell 2 are given to the UE, and are the same as cell 1.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE shall transmit this message after it reselects to cell 2. New calculated START value is included. New integrity protection configuration is applied on UL SRB2. If IE ìCiphering mode infoî is present in step 2, new~~New~~ ciphering configuration is applied on UL SRB2 with the downlink and uplink values of the HFN component of COUNT-C for SRB2 is incremented by one. Upon receiving this message, the SS shall not send RLC acknowledgement for this message and apply the downlink transmission power settings, according to the values in columns ìT2î of table 8.2.6.44
4	←→		Call C.1.	C.1 is performed in cell 1. If the test result of C.1 indicates that UE is in idle mode state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 2) ñ for PS domain testing only

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled ìPacket to CELL_DCH from CELL_DCH in PSî, with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to ìNot presentî. If network applies ciphering, this IE shall be included with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0/UEA1
- Ciphering activation time for DPCH	Not Present
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN
- RB identity	4
- RLC sequence number	Current RLC SN
- RB identity	20
- RLC sequence number	Current RLC SN
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

PHYSICAL CHANNEL RECONFIGURATION (Step 2) ñ for CS domain testing only

Use the same message sub-type found in [9] TS 34.108 clause 9, which is entitled ìNon speech to CELL_DCH from CELL_DCH in CSî or ìSpeech to CELL_DCH from CELL_DCH in CSî, with the following exception:

Information Element	Value/remark
Ciphering mode info	If network does not apply ciphering, set this IE to ìNot presentî. If network applies ciphering, this IE shall be included with the values of the sub IEs as stated below.
- Ciphering mode command	Start/restart
- Ciphering algorithm	UEA0/UEA1
- Ciphering activation time for DPCH	(256+CFN-(CFN MOD 8 + 8))MOD 256
- Radio bearer downlink ciphering activation time info	
- Radio bearer activation time	
- RB identity	1
- RLC sequence number	Current RLC SN
- RB identity	2
- RLC sequence number	Current RLC SN+2
- RB identity	3
- RLC sequence number	Current RLC SN
- RB identity	4
- RLC sequence number	Current RLC SN
Integrity protection mode info - Integrity protection mode command - Downlink integrity protection activation info - Integrity protection algorithm - Integrity protection initialisation number	 Start Not Present UIA1 SS selects an arbitrary 32 bits number for FRESH
New U-RNTI - SRNC identity - S-RNTI	 0000 0000 0010B 0000 0000 0000 0000 0001B
CN Information info - PLMN identity - CN common GSM-MAP NAS system information - GSM-MAP NAS system information - CN domain related information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information - CN domain identity - CN domain specific NAS system information - GSM-MAP NAS system information	 Not present 00 01H PS 05 00H CS 1E 01H
Downlink counter synchronisation info - RB with PDCP information list	 Not Present.
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 Set to same code as used for cell 2

PHYSICAL CHANNEL RECONFIGURATION COMPLETE (Step 3)

Check that the UE uses the same message sub-type found in TS 34.108 clause 9, with the following exception.

Information Element	Value/remark
Uplink counter synchronisation info - RB with PDCP information list - START list	 Not present Check that this IE is present.

8.2.6.44.5 Test requirement

After step 2, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC which includes which includes a calculated new START value according to the formula ì$START_X' = MSB_{20}$ (MAX {COUNT-C, COUNT-I | radio bearers and signalling radio bearers using the new CK_X and IK_X from step 1}) + 2î, calculated IE îIntegrity Check Infoî using the new FRESH value as included in IE îIntegrity protection initialisation numberî in IE îIntegrity protection mode infoî in PHYSICAL CHANNEL

RECONFIGURATION message and COUNT-I that includes subsequent HFN as used in the old integrity protection configuration.

After step 3, UE shall enter idle mode in cell 1.

3GPP TSG-T1#25
1-5 Nov Malta

T1 ⌘041807

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 996 ⌘ **rev** - ⌘ Current version: 5.9.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 3 Idle Mode test case 6.1.1.7
Source:	⌘	Anritsu Ltd and Rohde & Schwarz
Work item code:	⌘	N/A
Date:	⌘	01/11/04
Category:	⌘	**F**
Release:	⌘	REL - 5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
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Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	According to TS 34.108 section 6.1.4.2, Cell 1,2,3 belong to PLMN1,Cell 4,5,6 to PLMN2 and Cell 7, 8 to PLMN3.Therefore Cell5 is wrongly mapped to PLMN3. In the approved TTCN CR T1s040427 The value of Qqualmin was changed to -16 and the value of QrxlevMin was changed to -115 (equivalent to -58 in TTCN) in SIB 3 and SIB4. This change is to align the prose with the TTCN.
Summary of change:	⌘	Change Cell5 to Cell7. Added a table of message specific content for applicable System Information to show the new values for Qqualmin (-16) and QrxlevMin (-115).
Consequences if not approved:	⌘	Prose will not be consistent with the approved TTCN. No impact to TTCN.

Clauses affected:	⌘	N/A

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments:	⌘	This CR is in line with an approved TTCN CR T1s040427

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.1.1.7 Cell reselection of ePLMN in manual mode

6.1.1.7.1 Definition

Test to verify that the UE shall be able to reselect to a cell of another PLMN declared as equivalent PLMN to the registered PLMN in the manual mode.

6.1.1.7.2 Conformance requirement

B) Manual network selection mode
Once the UE has registered on a PLMN selected by the user, the UE shall not automatically register on a different PLMN unless:

i) The new PLMN is declared as an equivalent PLMN by the registered PLMN;

or,

ii) The user selects automatic mode.

References:

TS 22.011 clause 3.2.2.2B

6.1.1.7.3 Test purpose

To verify that in Manual Network Selection Mode Procedure, the UE can perform cell reselection to an equivalent PLMN.

6.1.1.7.4 Method of test

Initial conditions

The UE is in manual PLMN selection mode.
Cell_selection_and_reselection_quality_measure is CPICH_RSCP (FDD).
All Radio Access Technology USIM fields and cells are UTRAN.
Each cell shall include the other cells as neighbouring cells in System Information Block Type 11.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-78	-69	1	PLMN 1
Cell 4	-62	-54	2	PLMN 2
Cell7 ~~5~~	-68	-64	3	PLMN 3

Values of the system information fields applicable for this test case.to fullfill the criteria of Cell-Reselecton

Parameter	Setting
IMSI attach/detach	Method A, B: Not allowed Method C: Allowed
Intra-frequency cell re-selection indicator	Allowed
Cell_selection_and_reselection_quality_measure	CPICH RSCP (FDD)
Qqualmin (FDD only)	-16 dB
Qrxlevmin (FDD)	-115 dBm
Qrxlevmin (TDD)	-103 dBm
DRX cycle length	1,28 s

PLMN1 is the HPLMN.
The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF_{LOCI}		PLMN 1

Test procedure

a) The SS activates cells 1.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) A Location Update Accept message shall be sent on reception of a Location Update message from the UE. The Location Update Accept message shall include PLMN3 in the equivalent PLMN list.

e) Cell 4 and 7~~5~~ are activated.

6.1.1.7.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 1.

In step e), the UE shall perform a cell reselection and Location Update to PLMN 3, which is equivalent to PLMN1.

3GPP TSG-T1#25
1-5 Nov Malta

T1 ⌘041808

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 997 ⌘ **rev** - ⌘ Current version: 5.9.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 4 test case 8.1.2.4
Source:	⌘	Anritsu Ltd
Work item code:	⌘	N/A
Date:	⌘	01/11/04
Category:	⌘	**F**
Release:	⌘	REL - 5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The current Power setting in Table 8.1.2.4 for Cell 4 is an ìunsuitable neighbour cellî When the UE is expected to select a cell on the new frequency it can only select a cell which is "suitable". For a cell to be suitable it is necessary for the measured CPICH RSCP to excede Qrxlevmin; in this case Qrxlevmin is -80 dBm. The absolute accuracy requirement for CPICH RSCP measurement under normal conditions at this level is +/-6 dBm (25.133 clause 9.1.1.1). Therefore to ensure that the UE measures a level sufficient to determine the cell is suitable it is necessary for the level to be at least -74 dBm. A further margin should be allowed for SS tolerances, cable loss etc. (note that the requirements on the SS for this in signalling tests are shown as "<FFS>" in 34.108 clause 5.4.1 and a signalling tester would not be expected to have the accuracy of an RRM tester). Therefore a level of -72 dBm would be suitable.
Summary of change:	⌘	Changed Table 8.1.2.4 Cell 4 Power setting form ñ75 dBm to ñ72dBm
Consequences if not approved:	⌘	Test case will not pass consistently. The prose will not be consistent with the approved TTCN.

Clauses affected:	⌘	N/A

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	The TTCN CR T1s040442 has been approved. No impact to TTCN.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.1.2.4 RRC Connection Establishment: Reject ("wait time" is not equal to 0)

8.1.2.4.1 Definition

8.1.2.4.2 Conformance requirement

When the UE receives an RRC CONNECTION REJECT message on the downlink CCCH, it shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION REJECT message with the value of the variable INITIAL_UE_IDENTITY:
If the values are different, the UE shall ignore the rest of the message;
If the values are identical, the UE shall stop timer T300 and:

1> if the IE "wait time" <> '0'; and

1> if the IE "frequency info" is present and:

2> if V300 is equal to or smaller than N300:

3> initiate cell selection on the designated UTRA carrier;

3> after having selected and camped on a cell:

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> transmit an RRC CONNECTION REQUEST message on the uplink CCCH;

4> reset counter V300;

4> start timer T300 when the MAC layer indicates success or failure in transmitting the message;

4> disable cell reselection to original carrier until the time stated in the IE "wait time" has elapsed;

3> if a cell selection on the designated carrier fails:

4> wait for the time stated in the IE "wait time";

4> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

4> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

4> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

4> then submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH of the original serving cell;

4> increment counter V300;

4> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

Ö

1> If the IEs "frequency info" not presentÖ Ö Ö :

2> if V300 is equal to or smaller than N300:

3> wait at least the time stated in the IE "wait time";

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.2;

3> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13, and apply the given Access Service Class when accessing the RACH;

3> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

3> increment counter V300;

3> restart timer T300 when the MAC layer indicates success or failure to transmit the message;

2> if V300 is greater than N300:

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode from connected mode;

3> consider the RRC establishment procedure to be unsuccessful;

3> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.3.9.

8.1.2.4.3 Test purpose

To confirm that the UE retries to establish the RRC connection after the "wait time" elapses, if the UE receives an RRC CONNECTION REJECT message which includes the IE "wait time" not set to 0.
To confirm that the UE performs a cell reselection when receiving an RRC CONNECTION REJECT message, containing relevant frequency information of the target cell to be re-selected.

8.1.2.4.4 Method of test

Initial Condition

System Simulator: 2 cells ñ both cell 1 and cell 4 are active and suitable for camping, but cell 1 is transmitted using a larger power. Cell 1 and cell 4 are being transmitted from different 2 UARFCNs. The transmission power of cell 4 is 12~~15~~ dB smaller than cell 1.

Table 8.1.2.4

Parameter	Unit	Cell 1	Cell 4
UTRA RF Channel Number		Ch. 1	Ch. 2
CPICH Ec (FDD)	dBm/ 3.84 MHz	-60	-72~~-75~~
P-CCPCH (TDD)	dBm	-60	-72~~-75~~

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE transmits an RRC CONNECTION REQUEST message to the SS on the uplink CCCH by an outgoing call operation in cell 1. SS rejects the first request by transmitting an RRC CONNECTION REJECT message which indicates a non-zero wait time. In this message, frequency information for cell 4 is available. SS then waits for RRC

CONNECTION REQUEST message on the uplink CCCH of cell 4. SS will also monitor the uplink of cell 1 simultaneously to ensure that all transmission activities from cell 1 have ceased. When the UE has successfully camp onto cell 4, it shall send an RRC CONNECTION REQUEST with the same establishment cause as its previous attempt in cell 1. SS responds with an RRC CONNECTION REJECT message, indicating a non-zero "wait time" and omitting the IE "Redirection Info". The UE shall observe the wait time period indicated. After the wait time has elapsed, the UE shall re-transmit RRC CONNECTION REQUEST again. Finally, SS transmits an RRC CONNECTION SETUP message to establish an RRC connection with the UE, and the UE replies with an RRC CONNECTION SETUP COMPLETE message and enters CELL_DCH state.

Note: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		RRC CONNECTION REQUEST	SS prompts the operator to make an outgoing call in cell 1.
2	←		RRC CONNECTION REJECT	This message shall includes the IE "wait time" set to 15 seconds and IE "frequency info" set to the UARFCN of cell 4. Note: this wait time would apply after failure of the inter frequency cell re- selection, which is not verified in this test case
3				SS waits for a period of time sufficient for UE to reselect to cell 4. At the same time, it monitors the uplink of cell 1 to make sure that all transmissions have ceased.
4	→		RRC CONNECTION REQUEST	UE shall attempt to re-start an RRC connection establishment procedure in cell 4. The establishment cause shall remain unchanged.
5	←		RRC CONNECTION REJECT	This message shall include the IE "wait time" set to 15 seconds, but with IE "Redirection Info" absent.
6	→		RRC CONNECTION REQUEST	SS waits until the duration specified in IE "wait time" has elapsed and then listens to the uplink CCCH for a second RRC CONNECTION REQUEST message.
7	←		RRC CONNECTION SETUP	SS sends the message to UE to setup an RRC connection with the UE.
8				The UE shall configure the layer 2 and layer 1 in order to access the uplink and downlink DCCH assigned.
9	→		RRC CONNECTION SETUP COMPLETE	

Specific Message Contents

RRC CONNECTION REQUEST (Step 1, step 4 and step 6)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Initial UE Identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Must be "Originating Call"

RRC CONNECTION REJECT (Step 2) - FDD

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Wait time	15 seconds
Redirection Info	
- Frequency Info	
- CHOICE mode	FDD
- UARFCN uplink (Nu)	Not present
- UARFCN downlink (Nd)	Set to the UARFCN for uplink carrier of cell 4

Information Element	Value/remark
Wait time	15 seconds
Redirection Info	
Frequency Info	
CHOICE Mode	TDD
UARFCN (Nt)	Set to a different UARFCN from the carrier of cell 1

RRC CONNECTION REJECT (Step 5)

Use the same message type found in clause 9 of TS 34.108, with the following exception.

Information Element	Value/remark
Wait time	15 seconds

8.1.2.4.5 Test requirement

After step 3 the UE shall have successfully re-selected to cell 4. UE shall trigger the start of RRC connection establishment by transmitting RRC CONNECTION REQUEST. The establishment cause shall be originating call.
After step 5 the UE shall observe the period specified in IE "wait time" of the RRC CONNECTION REJECT message and not transmit an RRC CONNECTION REQUEST message in this period.
After step 7 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message to SS on uplink DCCH and then establish an RRC connection.

3GPP TSG-T1 Meeting #25
Malta, Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041902

CR-Form-v7.1

CHANGE REQUEST

⌘ **34.123-1** **CR** 1037 ⌘ **rev** - ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 2 testcase 8.4.1.7
Source:	⌘	Nokia, Anite & Anritsu
Work item code:	⌘	TEI
Date:	⌘	01/11/2004
Category:	⌘	**F**
Release:	⌘	REL - 5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change: ⌘

- Revision of T1-041551 after additions from Anite.
- Section 8.4.1.7.2 defines the conformance requirements. However, the paragraph starting ìUpon transition from CELL_FACH to CELL_DCH state:Öî has not been taken into account in the transition from Cell_FACH to Cell_DCH in the expected sequence step 14e. Consequently a conformant UE will resume measurement reporting for intrafrequency measurements configured for CELL_DCH as per similar expected sequence step 9c.
- Section 8.4.1.7.3 defines the test purpose. However, the paragraph starting ìTo confirm that a MEASUREMENT CONTROL message received in CELL_DCH state overridesÖî should be clarified with respect to 25.331 section 8.4 whereby measurement control messages shall only override SIB measurements if the respective measurement identities match. The current wording makes no reference to matching measurement identities.
- With the power settings in table 8.4.1.7-1 at T0, the UE CPICH_Ec/Io for cell 3 comes close to -20dB due to noise from other cells and cable losses.. As per 34.121 section 8.7.2.1.1.2 the tolerance for CPICH_Ec/Io is ±3dB and as per 25.133 section 8.1.2.2.1, a cell shall only be considered detectable when CPICH Ec/Io > -20 dB. Thus, the UE may not be able to detect Cell 3. If the power level of the Cell 2 is increased to -65dbm and Cell 3 to -70 dbm, CPICH_Ec/Io for Cell 3 will be sufficiently above -20 dB to ensure that the UE will be able to detect the cell.
- In clause 8.4.1.7.4, Message specific content for System Information Block type

		11 for cell 1 (Step 1) modified to be consistent with the TTCN implementation.
Summary of change:	⌘	Revised wording of, and modified power levels, section 8.4.1.7.3, 8.4.1.7.4 and 8.4.1.7.5 in line with reasons for change described above. Modified power levels in section 8.4.1.7.4 in line with reasons for change described above. In clause 8.4.1.7.4, Message specific content for System Information Block type 11 for cell 1 (Step 1), the value of the IE Inter-frequency measurement system information modified to be the default value as in 34.108 clause 6.10b.
Consequences if not approved:	⌘	The current prose behaviour does not match that of a conformant UE.

Clauses affected:	⌘	8.4.1.7.3, 8.4.1.7.4, 8.4.1.7.5			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	None			

How to create CRs using this form:

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4.1.7 Measurement Control and Report: Intra-frequency measurement for transition from CELL_FACH to CELL_DCH state (FDD)

8.4.1.7.1 Definition

8.4.1.7.2 Conformance requirement

Upon transition from CELL_FACH to CELL_DCH state:

1> if intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> if the cell in which the UE transited from CELL_FACH state is included in the active set for the CELL_DCH state, the UE shall:

3> resume the measurement reporting.

2> otherwise:

3> the UE should not resume the measurement reporting. If the UE does not resume the measurement reporting, the measurement shall be restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

Ö

Upon cell reselection while in CELL_FACH/CELL_PCH/URA_PCH state and the cell reselection has occurred after the measurement control information was stored, the UE shall:

1> delete all measurements of type intra-frequency, inter-frequency, and inter-RAT associated with the variable MEASUREMENT_IDENTITY;

Ö

1> delete the traffic volume measurements that have not been set up or modified through a MEASUREMENT CONTROL message.

Ö

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

3> if the UE is in CELL_FACH state:

4> the UE behaviour is not specified.

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement" that require measurements on a frequency other than the actually used frequency:

Ö

2> for measurement type "inter-frequency measurement" that requires measurements only on the same frequency as the actually used frequency:

Ö

2> for measurement type "UE positioning measurement":

Ö

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

5> if the UE is in CELL_FACH state:

6> the UE behaviour is not specified.

4> if measurement type is set to "intra-frequency measurement", for any of the optional IEs "Intra-frequency measurement objects list", "Intra-frequency measurement quantity", "Intra-frequency reporting quantity", "Measurement Validity", "report criteria" and "parameters required for each event" (given "report criteria" is set to "intra-frequency measurement reporting criteria") that are present in the MEASUREMENT CONTROL message:

Ö

5> replace the corresponding information (the IEs listed above and all their children) stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the one received in the MEASUREMENT CONTROL message;

5> leave all other stored information elements unchanged in the variable MEASUREMENT_IDENTITY.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

Reference

3GPP TS 25.331, clause 8.4.1.3, 8.4.1.6a and 8.4.1.7.1

8.4.1.7.3 Test Purpose

- To confirm that UE retrieves stored measurement control information for intra-frequency measurement type with "measurement validity" assigned to "CELL_DCH", after it enters CELL_DCH state from CELL_FACH state.
- To confirm that the UE continues to monitor the neighbouring cells listed "intra-frequency cell info" IE in the System Information Block type 11 or 12 messages, if no intra-frequency measurements applicable to CELL_DCH are stored.
- To confirm that the UE transmits MEASUREMENT REPORT messages if reporting criteria stated in IE "intra-frequency measurement reporting criteria" in System Information Block type 11 or 12 messages are fulfilled.
- To confirm that a MEASUREMENT CONTROL message received in CELL_DCH state overrides the measurement and associated reporting contexts maintained in the UE by virtue of System Information Block

type 11 or 12 messages only if the measurement identities defined within the MEASUREMENT CONTROL message and System Information Block type 11 or 12 are identical.

- To confirm that the UE delete all measurements of type intra-frequency upon cell reselection while in CELL_FACH.

8.4.1.7.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1, cell 2 and cell 3 are active.

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: PS-DCCH+DTCH_FACH (state 6-11).

Test Procedure

Table 8.4.1.7-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.4.1.7-1

Para-meter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Ch. 1			Ch. 1			Ch. 1		
CPICH Ec	dBm /3.84 MHz	-60	-70	-70	-7065	-60	-60	-70	-70	-60

The UE is brought to CELL_FACH state in cell 1. (step 1) SS sends SYSTEM INFORMATION CHANGE INDICATION message to UE to inform UE of the modification in the system information.

SS sends a RADIO BEARER RECONFIGURATION message to UE (step2), and configures dedicated physical channels on both uplink and downlink directions. The UE shall move to CELL_DCH state and then return RADIO BEARER RECONFIGURATION COMPLETE message (step3). The UE shall send a MEASUREMENT REPORT message containing IE "Measured results" to report cell 2's CPICH RSCP value and IE "event results" to report triggering of event type "1e" (step 4). After receiving the MEASUREMENT REPORT message, SS transmits a MEASUREMENT CONTROL message with only cell 3 included in the IE "intra-frequency cell info" (step 5). After receiving such a message, the UE shall transmit another set of MEASUREMENT REPORT message for measurement identity = 11. SS verifies that measurement readings for cell 3 's CPICH RSCP are reported in IE "cell measured results" in this message (step 6). Cell 3 shall also trigger event 1e for the measurement that the UE had stored from system information, so a MEASUREMENT REPORT message shall be received for measurement identity = 10 (step 6a) as well. The order of steps 6 and 6a is not important and could be reversed.

Next, SS sends a PHYSICAL CHANNEL RECONFIGURATION message (step 7). SS configures common physical channels for both the uplink and the downlink directions. The UE shall transit to CELL_FACH state and then reply with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 8). SS waits and checks the uplink RACH to confirm that no MEASUREMENT REPORT messages are received (step 9).

SS transmits then a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH state (step 9a). The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS (step 9b). Shortly after, a MEASUREMENT REPORT message shall be received that has been triggered by cell 2, i.e. the UE shall have deleted the measurement configured through the MEASUREMENT CONTROL message of step 5, and instead apply the measurement configured in SIB12: a MEASUREMENT REPORT message with measurement identity 10 shall be received while no such message with measurement identity 11 shall be sent by the UE (step 9c).

SS transmits MEASUREMENT CONTROL message on the downlink DCCH, to configure intra-frequency measurements with validity CELL_DCH (step 10). The UE shall send a MEASUREMENT REPORT message (with IE ì Measurement identityî = 12) to the SS triggered by cell 2 (step 14).

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to move it to CELL_FACH state (step 14a). The UE shall move to that state and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS (step 14b). SS shall wait and check that no MEASUREMENT REPORT messages are detected on the uplink DCCH (step 14c).

SS transmits a RADIO BEARER RECONFIGURATION message to the UE, to move it to CELL_DCH state (step 14d). The UE shall move to that state, and transmit a RADIO BEARER RECONFIGURATION COMPLETE message to SS (step 14e). Shortly after, a MEASUREMENT REPORT message shall be received that has been triggered by cell 2, i.e the UE shall have retrieved the measurement configured through the MEASUREMENT CONTROL message of step 10~~, instead of the ones that are broadcast in SIB12~~ (step 14f). The UE shall also apply the measurement configured in SIB12: a MEASUREMENT REPORT message with measurement identity 10 shall be received (step 15). The order of steps 14f and 15 is not important and could be reversed.

Following the reception of the MEASUREMENT REPORT message(s), SS commands the UE using MEASUREMENT CONTROL message to release measurement control information stored in "measurement identity" = 12 (step ~~15~~ 16). Thereafter, SS verifies that no MEASUREMENT REPORT messages are detected on the uplink DCCH with "measurement identity" = 12 (step ~~16~~ 16a). After this requirement is satisfied, SS sends MEASUREMENT CONTROL on the downlink DCCH once more (step 17). This message is identical to the one sent in step 10 (see specific message content). A MEASUREMENT REPORT message shall be received from the UE triggered by cell 2 (step 17a).

SS transmits a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH and configures common physical channel (step 18). The UE shall transit to CELL_FACH state and then respond with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 19). SS monitors the uplink DCCH once more to verify that no MEASUREMENT REPORT messages are detected (step 20). SS modifies the downlink transmission power of the respect cells according to the settings in columns "T1" in table 8.4.1.7-1. System information block type 11 and System Information Block type 12 for cell 2 shall be different from the default settings according to what is defined in the specific message content part of this section (step 21). The UE shall initiate a cell re-selection procedure. This is verified in the SS when a CELL UPDATE message is received on the uplink CCCH with the "cell update cause" IE set to "cell reselection" (step 22). SS transmits a CELL UPDATE CONFIRM message, which includes "New C-RNTI", on the DCCH (step 23). Then the UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM message (step 23a). Next, SS sends a RADIO BEARER RECONFIGURATION message on the downlink DCCH, assigning dedicated physical channels in both uplink and downlink directions (step 24). The UE shall respond with a RADIO BEARER RECONFIGURATION COMPLETE message and then return to CELL_DCH state (step 25). SS modifies the downlink transmission power of all cells according to the settings in columns "T2" in table 8.4.1.7-1. UE shall then send MEASUREMENT REPORT messages reporting cell 3's CPICH RSCP according to the content in System Information Block type 12 messages broadcasted in cell 2 (step 21).SS transmits a MEASUREMENT CONTROL message (step 27) whereby the measurement identity is set to the same value as that in the SIB type 12 messages (step 21). UE shall send MEASUREMENT REPORT message (step 28) reporting cell 3's CPICH RSCP according to the MEASUREMENT CONTROL message (step 27).

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11 and 12	UE is initially in PS-DCCH+DTCH_FACH (state 6-11) in cell 1. System Information Block type 11 and 12 messages are changed with respect to the default contents according to the descriptions in "Specific Message Contents" clause.
1a	←		SYSTEM INFORMATION CHANGE INDICATION	
2	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
4	→		MEASUREMENT REPORT	Reports cell 2's CPICH RSCP measurement value, with ìmeasurement identityî IE set to ì10î.
5	←		MEASUREMENT CONTROL	Cell 3 is added to the list of monitored set of the UE.
6	→		MEASUREMENT REPORT	Cell 3 shall trigger the event 1e configured in the measurement identity 11.
6a	→		MEASUREMENT REPORT	Cell 3 shall also trigger the event 1e configured in the measurement identity 10. The order of steps 6 and 6a could be reversed.
7	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
9				SS waits and checks that no MEASUREMENT REPORT messages are sent by UE.
9a	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
9b	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
9c	→		MEASUREMENT REPORT	UE shall report cell 2's CPICH RSCP measurement value, with ìmeasurement identityî IE set to ì10î.
9d	←		Void	
9e	→		Void	
10	←		MEASUREMENT CONTROL	SS instructs the UE to setup intra-frequency measurement and reporting for cell 2. Measurement validity" IE is set to CELL_DCH state.
11				
12	←		Void	
13	→		Void	
13a	→		MEASUREMENT REPORT	UE shall report cell 2's CPICH RSCP measurement value, with ìmeasurement identityî IE set to ì10î. Note: The order of steps 13a and 14 could be reversed.

Step	Direction		Message	Comment
	UE	SS		
14	→		MEASUREMENT REPORT	UE reports cell 2's measured results for CPICH RSCP, with ìmeasurement identityî IE set to ì12î.
14a	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels.
14b	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
14c				SS waits and check that no MEASUREMENT REPORT messages are sent by the UE.
14d	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
14e	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall move to CELL_DCH state.
14f	→		MEASUREMENT REPORT	UE shall have retrieved and resumed the measurement set up through the MEASUREMENT CONTROL of step 10.The ìmeasurement identityî IE shall be set to ì12î.
15	~~←~~ →		~~MEASUREMENT CONTROL~~ MEASUREMENT REPORT	UE shall report cell 2's CPICH RSCP measurement value, with ìmeasurement identityî IE set to ì10î. The order of steps 14f and 15 could be reversed.~~Terminate all the intra-frequency measurement and reporting activities related to "measurement identity" = 12.~~
16	←		MEASUREMENT CONTROL	~~SS waits and verifies that UE stop transmitting MEASUREMENT REPORT messages.~~ Terminate all the intra-frequency measurement and reporting activities related to "measurement identity" = 12.
16a				SS waits and verifies that UE stops transmitting MEASUREMENT REPORT messages with ìmeasurement identityî = 12.
17	←		MEASUREMENT CONTROL	This message is the same as in step 10.
17a	→		MEASUREMENT REPORT	UE shall transmit a MEASUREMENT REPORT message triggered by cell 2, with ìmeasurement identityî IE set to ì12î.
17b	→		MEASUREMENT REPORT	UE shall report cell 2's CPICH RSCP measurement value, with ìmeasurement identityî IE set to ì10î. Note: The order of steps 17a and 17b could be reversed.
18	←		PHYSICAL CHANNEL RECONFIGURATION	Allocates common physical channels.
19	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state.
20				SS checks that no MEASUREMENT REPORT messages are received.

Step	Direction		Message	Comment
	UE	SS		
21	←		System Information Block type 11 System Information Block type 12	SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column "T1" in table 8.4.1.7. SS sends SIB11 and SIB12 with specific values to Cell2.
22	→		CELL UPDATE	UE shall re-selects to cell 2 and then perform a cell update procedure.
23	←		CELL UPDATE CONFIRM	UE shall stay in CELL_FACH state.
23a	→		UTRAN MOBILITY INFORMATION CONFIRM	
24	←		RADIO BEARER RECONFIGURATION	Dedicated physical channels are assigned to the UE in this message.
25	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall return to CELL_DCH state.UE shall not send Measurement Report message with ìmeasurement identityî = ëí2í.
25a				SS reconfigures the downlink transmission power settings of all cells according to column ìT2î in table 8.4.1.7-1.
26	→		MEASUREMENT REPORT	UE begins to report cell 3's measured results for CPICH RSCP, with ìmeasurement identityî IE set to ì1î.
27	←		MEASUREMENT CONTROL	
28	→		MEASUREMENT REPORT	UE shall transmit a MEASUREMENT REPORT message triggered by cell 3, with ìmeasurement identityî IE set to ì1î.

Specific Message Content

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

Master Information Block (Step 1)

Information Element	Value/Remarks
MIB Value Tag	3

System Information Block type 11 for cell 1 (Step 1)

Information Element	Value/remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH Ec/No
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS34.108
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	Not present
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present
- Inter-frequency measurement system information	As per 34.108 clause 6.1.0b - Contents of System Information Block type 11 (FDD) ~~Not present~~
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not Present

System Information Block type 12 for cell 1 (Step 1)

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH Ec/No
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	10
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not present
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	No report
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameter required for each event	
- Intra-frequency event identity	1e
- Triggering condition 1	Not present
- Triggering condition 2	Monitored set cells
- Reporting range constant	Not present
- Cells forbidden to affect reporting range	Not present
- W	Not present
- Hysteresis	0 dB
- Threshold used frequency	-80 dBm
- Reporting deactivation threshold	Not present
- Replacement activation threshold	Not present
- Time to trigger	0
- Amount of reporting	Not Present

- Reporting Interval	Not Present
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not Present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 1a)

Information Element	Value/Remarks
BCCH modification info	
- MIB Value Tag	3
- BCCH modification time	Not Present

RADIO BEARER RECONFIGURATION (Step 2, Step 9a, Step 14d and Step 24)

Use the same message type found in Annex A, with condition set to A4.

MEASUREMENT REPORT (Steps 4, ~~and~~ 9c, 13a, 15 and 17b)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 2

MEASUREMENT CONTROL (Step 5)

Information Element	Value/remark
Measurement Identity	11
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells selection and Re-selection info	Not Present
- Cells for measurement	
- Intra-frequency cell id	3
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement criteria
- Parameters required for each event	
- Intra-frequency event identity	1e
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range	Not Present
- Cells forbidden to affect Reporting range	Not Present
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to the same scrambling code for cell 3
- W	Not Present
- Hysteresis	0 dB
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Threshold used frequency	-90 dBm
- Time to Trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set cells on used frequency

- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 6)

Information Element	Value/remark
Measurement identity	Check to see if set to 11
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

MEASUREMENT REPORT (Step 6a)

Information Element	Value/remark
Measurement identity	Check to see if set to 10
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	
- Cell Identity	Check to see if this IE is absent Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

PHYSICAL CHANNEL RECONFIGURATION (Steps 7, 14a and 18)

Use the same message sub-type found in clause 9 of TS 34.108, which is entitled "Packet to CELL_FACH from CELL_DCH in PS".

MEASUREMENT CONTROL (Steps 10 and 17)

Information Element	Value/remark
Measurement Identity	12
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra- frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	
- UE state	CELL_DCH
- CHOICE report criteria	Intra-frequency measurement criteria
- Parameters required for each event	
- Intra-frequency event identity	1e
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range	Not Present
- Cells forbidden to affect Reporting range	Not Present
- Primary CPICH Info	
- Primary Scrambling Code	Set to the same scrambling code for cell 2
- W	Not Present
- Hysteresis	0 dB
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Threshold Used Frequency	-80 dBm
- Time to Trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	1

DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Steps 14, 14f and 17a)

Information Element	Value/remark
Measurement identity	Check to see if set to 12
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 2

MEASUREMENT CONTROL (Step ~~15~~ 16)

Information Element	Value/remark
Measurement Identity	12
Measurement Command	Release
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE Measurement type	Not Present
DPCH compressed mode status info	Not Present

System Information Block type 11 for cell 2 (Step 21)

Information Element	Value/Remark
SIB12 indicator	TRUE
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH Ec/No
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not Present
- New intra-frequency cells	
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	Not Present
- Reference time difference to cell	Not present
- Read SFN indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1.4
- Primary CPICH Tx power	Not present
- TX Diversity indicator	FALSE
- Cell Selection and Re-selection info	Not present
- Cells for measurement	Not present
- Intra-frequency measurement quantity	
- Filter coefficient	Not Present
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	Not present
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not Present

System Information Block type 12 for cell 2 (Step 21)

Information Element	Value/Remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH Ec/No
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	Not Present
- Intra-frequency measurement quantity	
- Filter coefficient	Not Present
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity for RACH reporting	Not present
- Maximum number of reported cells on RACH	Not present
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	TRUE
- CHOICE mode	FDD
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Measurement reporting mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Intra-frequency measurement reporting criteria	
- Intra-frequency event identity	1a
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	5dB
- Cells forbidden to affect Reporting range	Not Present
- W	0
- Hysteresis	0.0
- Threshold Used Frequency	Not Present
- Reporting deactivation threshold	2
- Replacement activation threshold	Not Present
- Time to trigger	640
- Amount of reporting	4
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cell	Report cell within active set and/or monitored set cells on used frequency
- Maximum number of reported cells	3
- Inter-frequency measurement system information	Not present
- Inter-RAT measurement system information	Not present
- Traffic volume measurement system information	Not Present
- UE internal measurement system information	Not Present

CELL UPDATE (Step 22)

Information Element	Value/remark
U-RNTI	
- SRNC Identity	Check to see if set to '0000 0000 0001'
- S-RNTI	Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection'
Protocol error indicator	Check to see if it is absent or set to 'FALSE'
Measured results on RACH	Check to see if it is absent
Protocol error information	Check to see if it is absent

CELL UPDATE CONFIRM (Step 23)

Use the default message content of the same message type in Annex A, with the following exceptions.

Information Element	Value/Remarks
New C-RNTI	'1010 1010 1010 1010'

UTRAN MOBILITY INFORMATION CONFIRM (Step 23a)

Only the message type is checked.

MEASUREMENT REPORT (Step 26)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1a'
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

Note: Cells 2 and 3 can be received in any order

MEASUREMENT CONTROL (Step 27)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	Not present
- Cells for measurement	
- Intra-frequency cell id	3
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE

- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	TRUE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement criteria
- Parameters required for each event	
- Intra-frequency event identity	1e
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range	Not Present
- Cells forbidden to affect Reporting range	Not Present
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to the same scrambling code for cell 3
- W	Not Present
- Hysteresis	0 dB
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Threshold used frequency	-90 dBm
- Time to Trigger	0
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set cells on used frequency
- Maximum number of reported cells	1
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 28)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	
- Cell Identity	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional measured results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if it's set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if this IE is set to '1e'
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 3

8.4.1.7.5 Test Requirement

After step 3 the UE shall report cell 2's CPICH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 5 the UE shall transmit two MEASUREMENT REPORT messages which contain measured results of cell 3's CPICH RSCP value only, one for measurement identity 10 and one for measurement identity 11.

After step 9 and step 11 the UE shall not transmit MEASUREMENT REPORT messages, which pertain to intra-frequency type measurement reporting.

After step 9b, the UE shall transmit a MEASUREMENT REPORT according to what is broadcast in SIB 11 and 12 of cell 1, and MEASUREMENT REPORT message pertaining to the MEASUREMENT CONTROL message that it had received in step 5.

After steps 13 and 14e, the UE shall resume the measurement and reporting activities as specified in MEASUREMENT CONTROL message received in step 10. The UE shall transmit MEASUREMENT REPORT messages, containing measured results of cell 2's CPICH RSCP value.

After step 14e, the UE shall transmit a MEASUREMENT REPORT according to what is broadcast in SIB 11 and 12 of cell 1.

After step ~~15~~ 16 the UE shall stop measurement activities pertaining to ~~periodic~~ event triggered reporting of cell 2's CPICH RSCP, no MEASUREMENT REPORT messages shall be detectable by the SS on the uplink DCCH with ì measurement identityî = 12.

After step 17, the UE shall transmit a MEASUREMENT REPORT message to the SS as specified in the MEASUREMENT CONTROL message received in step 17.

After step 21 the UE shall re-select to cell 2 and initiate a cell update procedure. SS shall receive a CELL UPDATE message on the uplink CCCH of cell 2, with the "cell update cause" IE stated as "cell re-selection".

After step 23, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH AM RLC.

After step 25, UE shall not send MEASUREMENT REPORT message with ì measurement identityî = ë12í.

After step 25a the UE shall report cell 3's CPICH RSCP value by transmitting MEASUREMENT REPORT messages.

After step 27, UE shall send MEASUREMENT REPORT message with ì measurement identityî = ë1í.

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘T1-041904

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **998** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Inter-RAT idle mode Package 2 test case 6.2.1.8
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	06/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	1) At ì Step g ì of the Test procedure , there is a typographic error ì(PLMN6 registered in step c)î which should refer to ìstep eî. 2) Yellow highlighting of text within a table has been introduced into document by mistake
Summary of change:	⌘	1) Change reference to ì (PLMN6 registered in step e)î **2)** Remove yellow highlighting from table (to be performed at the time of editorial update of the document)
Consequences if not approved:	⌘	Typographic error and highlighting remains causing confusion

Clauses affected:	⌘	6.2.1.8

Other specs Affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	(Revision of T1-041549)

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

6.2.1.8 Selection of RAT for OPLMN; Automatic mode

6.2.1.8.1 Definition

Test to verify that the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM. If no PLMN/RAT on the OPLMN list is available then the UE shall search for other PLMN/access technology combinations with received high quality signal in random order.

6.2.1.8.2 Conformance requirement

1. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   1.1 HPLMN (if not previously selected);

   1.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   1.4 Other PLMN/access technology combinations with received high quality signal in random order;

   1.5 Other PLMN/access technology combinations in order of decreasing signal quality.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If registration cannot be achieved because no PLMNs are available and allowable, the MS indicates "no service" to the user, waits until a new PLMN is available and allowable and then repeats the procedure.

   If there were one or more PLMNs which were available and allowable, but an LR failure made registration on those PLMNs unsuccessful or an entry in the "forbidden LAs for regional provision of service" list prevented a registration attempt, the MS selects the first such PLMN again and enters a limited service state.

References

1. TS 23.122, clause 4.4.3.1.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.8.3 Test purpose

1. To verify that:

   1.1 the UE selects the OPLMN RAT according to the OPLMN RAT priority list on the USIM.

   1.2 If no PLMN/RAT on the OPLMN RAT priority list is available, the UE searches for "other PLMN/access technology combinations with received high quality signal in random order".

6.2.1.8.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3, 6.4 and 6.5.

In system information broadcast in each cell, the neighbouring cell list does not contain any other cell belonging to the same PLMN.

Cell	CPICH_Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-70	-59	1	PLMN 5	UTRAN
Cell 3	-75	-64	2	PLMN 6	UTRAN
Cell 5	-80	-69	3	PLMN 7	UTRAN

Cell	RF signal level [dBm]	Test Channel	PLMN	Radio Access Technology
Cell 2	-48	1	PLMN 5	GSM
Cell 4	-50	2	PLMN 6	GSM

<<**EDITORIAL COMMENT** ñ REMOVE YELLOW HIGHLIGHTING ABOVE>>

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN 2	UTRAN
	2nd	PLMN 2	GSM
$EF_{PLMNwAcT}$	1st	PLMN 3	UTRAN
	2nd	PLMN 4	GSM
$EF_{OPLMNwAcT}$	1st	PLMN 5	UTRAN
	2nd	PLMN 6	GSM

The HPLMN (MCC+MNC) of the IMSI for the USIM is set to PLMN2.

Test procedure

Method C is applied.

a) The SS activates cells 1-5 and monitors the cells for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN1), home PLMN/RAT (PLMN2, UTRAN or GSM) nor user controlled PLMN/RAT (PLMN3/UTRAN or PLMN4/GSM) then the UE shall select Cell 1 (1st priority RAT for $EF_{OPLMNwAcT}$).

d) Cell 1 and Cell 2 are switched off. See note.

e) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN5 registered in step c), home PLMN/RAT (PLMN2, UTRAN or GSM), user controlled PLMN/RAT (PLMN3/UTRAN or PLMN4/GSM) nor any cells for the 1st priority PLMN/RAT in $EF_{OPLMNwAcT}$ (PLMN5/UTRAN) then UE shall select Cell 4 (2nd priority PLMN/RAT in $EF_{OPLMNwAcT}$).

f) Cell 4 and Cell 3 are switched off. See note.

g) The SS waits for random access requests from the UE. As no cell exists for neither registered PLMN (PLMN6 registered in step ~~e~~ e), home PLMN/RAT (PLMN2, UTRAN or GSM), user controlled PLMN/RAT (PLMN3/UTRAN or PLMN4/GSM) nor operator controlled PLMN/RAT (PLMN5/UTRAN or PLMN6/GSM) then UE shall select another PLMN/access technology combinations with received high quality signal in random order (Cell 5).

NOTE: When the serving cell (Cell 1 in step d and Cell 4 in step f) is switched off then the UE will trigger the recovery from lack of coverage scenario (TS 23.122 clause 4.4.3.1). The UE will search for a cell within the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the UE is capable of. Thus need Cell 2 in step d and Cell 3 in step f to be switched off.

6.2.1.8.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN5 (UTRAN).

2) In step e), the response from the UE shall be on Cell 4 (2nd priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN6 (GSM).

3) In step g), the response from the UE shall be on either Cell 5 (other PLMN/access technology combination) with associated PLMN7 (UTRAN) shown.

<< END OF MODIFIED SECTION >>

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st-5th November 2004

Tdoc ⌘T1-041906

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **999** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to Radio Bearer Setup used for RLC testing
Source:	⌘	Cetecom, MCC160, Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	01/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	Incorrect definition of Radio Bearer Setup message contents for RLC testing. For RB20 TTCN test case implementation sets Re-establishment timer to value ÑuseT314ì and MAC logical channel priority to Ñ7ì, whereas default message contents defined in 34.108, section 9.1.1 define the above Ies to Ñuse T315ì and Ñ8ì.
Summary of change:	⌘	Addition of a new clause to the RLC test specification to explicitly define Re-establishment timer value and MAC logical channel priority value to be used for RLC testing.
Consequences if not approved:	⌘	Mismatch between prose and TTCN implementation.

Clauses affected:	⌘	7.2.0

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Affects R99, Rel-4 and Rel-5. This CR aligns the prose to the TTCN.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

7.2 RLC testing

7.2.0 General

7.2.0.1 Radio bearer setup

For radio bearer setup the following settings shall be used in both CS and PS mode:

- Re-establishment Timer: useT314
- MAC logical channel priority: 7

7.2.1 Transparent mode

7.2.1.1 Segmentation and reassembly

Transparent mode segmentation and reassembly are not tested in this release of the specification.

<END OF MODIFIED SECTION>

3GPP TSG-T WG1 Meeting #25
St.Paulís Bay, Malta, 1st - 5th Nov 2004

T1-041907

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1000** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 4 RRC test case 8.3.7.5
Source:	⌘	Motorola, Rohde & Schwarz and MCC 160
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	F
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘ 1. Test does not cater for UE that do not require compressed mode to do inter-RAT measurements.

2. To align the prose version of test case 8.3.7.5 with the approved TTCN implementation

Summary of change: ⌘ 1. Modified comments column of step 1c to start compressed mode only if it is required as per UE capability.

Modified message contents for Measurement Control (step 1c) adding option for UE not needing compressed mode.

Added specific message contents for Measurement Report in steps 1d and 5a for UE not needing compressed mode.

2. A clarification was added to state that only one GSM cell is actually configured in the test case.

As this test case supports multiple GSM bands, the actual BCCH ARFCNs should not be hardcoded in the prose as GSM900. Table 6.5 from 3GPP 34.123-1 is now referenced in both, the Initial Conditions and the MEASUREMENT CONTROL resp. REPORT messages, to specify the appropriate BCCH ARFCN value according to the GSM band under test.

According to the TGPSI patterns the UE shall take more than a minimum of 2500 ms to activate Compressed Mode and then send a MEASUREMENT REPORT. So the reporting period for MEASUREMENT REPORT message should be increased from 1000 ms to 4000 ms in the Test Procedure and the specific contents of the MEASUREMENT CONTROL message.

Consequences if not approved:	⌘	1. Test as specified may incorrectly fail a conformant UE 2. Misalignment between prose version and approved TTCN implementation of test case 8.3.7.5

Clauses affected:	⌘	8.3.7.5			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects R99, REL-4, REL-5.			

8.3.7.5 Inter system handover from UTRAN/To GSM/Speech/Failure

8.3.7.5.1 Definition

8.3.7.5.2 Conformance requirement

If the UE does not succeed in establishing the connection to the other target radio access technology, it shall

1> revert back to the UTRA configuration;

1> establish the UTRA physical channel(s) used at the time for reception of HANDOVER FROM UTRAN COMMAND;

Ö

transmit the HANDOVER FROM UTRAN FAILURE message setting the information elements as specified below:

2> include the IE "RRC transaction identifier"; and

2> set it to the value of "RRC transaction identifier" in the entry for the HANDOVER FROM UTRAN COMMAND message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry;

2> set the IE "Inter-RAT handover failure" to "physical channel failure".

1> When the HANDOVER FROM UTRAN FAILURE message has been submitted to lower layer for transmission:

2> the procedure ends.

Reference(s)

TS 25.331 Clause 8.3.7.5.

8.3.7.5.3 Test purpose

To test that the UE reactivates the old configuration and uses this to transmit a HANDOVER FROM UTRAN FAILURE message to the network including IE "Inter-RAT Handover failure cause" which is set to "physical channel failure", when it receives an HANDOVER FROM UTRAN COMMAND and the connection to GSM for handover can not be established.

To verify that after the handover failure the UE resumes previously configured compressed mode patterns and measurements.

8.3.7.5.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 9 is GSM. GSM 51.010 clause 26.6.5.1 shall be referenced for the default parameters of cell 9. The ARFCN value shall be according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN).

UE: Idle state (state 2 or state 7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM FR,
- UE supports UTRAN AMR,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480, GSM-PCS
- UE supports compressed mode (FDD only).

Foreseen final state of the UE

The UE is in CC state U10 on cell 1.

Test Procedure

The SS brings the UE into call active state (CC state U10) with AMR. If the UE requires compressed mode (refer ICS/IXIT), the SS sends a PHYSICAL CHANNEL RECONFIGURATION message to the UE to configure the compressed mode pattern sequence parameters. When the PHYSICAL CHANNEL RECONFIGURATION COMPLETE is received from the UE, the SS sends a MEASUREMENT CONTROL message indicating two GSM cells of which only one is actually configured. This message is used to provide measurement control parameters (GSM RSSI) to the UE and to start compressed mode for the measurement if required according to the UE capabilities. The UE replies according to request by sending RRC: MEASUREMENT REPORT messages periodically to SS (reporting period is 41000 ms).

The SS sends a HANDOVER FROM UTRAN COMMAND indicating a dedicated channel (not configured) of the target GSM cell to the UE through DCCH of the serving UTRAN cell. The UE receives the command and configures itself accordingly but can not complete the handover. The SS checks that the handover is failed by checking that the UE transmits the HANDOVER FROM UTRAN FAILURE message to the SS using the old UTRAN configuration.

After the handover failure, the UE re-activates compressed mode (if configured) and resumes periodic measurement reporting including sending MEASUREMENT REPORT messages periodically to SS.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into U10 state in UTRAN cell 1. If the UE does not require compressed mode (refer ICS/IXIT), then goto step 1c.
1a	←		PHYSICAL CHANNEL RECONFIGURATION	Compressed mode pattern sequence parameters are loaded to UE.
1b	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
1c	←		MEASUREMENT CONTROL	SS provides GSM RSSI measurement control parameters to UE. Compressed mode for GSM RSSI measurement is started if required as per UE capabilities.
1d	→		MEASUREMENT REPORT	UE reports measurement results of GSM RSSI measurement to SS.
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM FR which does not exist in the GSM cell.
4	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
5	→		HANDOVER FROM UTRAN FAILURE	The SS receives the message via the old UTRAN configuration.
5a	→		MEASUREMENT REPORT	The SS shall verify that the UE resumes periodic measurement reporting for GSM RSSI measurements

Specific message contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1a)

Use the same message sub-type as in TS 34.108 titled "Speech in CS", with the following exceptions:

Information Element	Value/remark
Downlink information common for all radio links	
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM Carrier RSSI Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	Undefined
- TGPL1	12
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TGPSI	2
- TGPS Status Flag	Deactivate
- TGCFN	Not present
- Transmission gap pattern sequence configuration parameters	
- TGMP	GSM Initial BSIC identification
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not present
- TGD	Undefined
- TGPL1	8
- TGPL2	Not present
- RPP	Mode 0
- ITP	Mode 0
CHOICE UL/DL Mode	UL&DL or UL-only or DL-only (depends on UE's Measurement capability)
- Downlink compressed mode method	SF/2
- Uplink compressed mode method	SF/2
- Downlink frame type	A
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	128
- T Reconfirm abort	Not Present

MEASUREMENT CONTROL (Step 1c)

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Periodical reporting
Additional measurements list	Not Present
CHOICE measurement type	
- inter-RAT measurement	
- inter-RAT measurement object list	
CHOICE Inter-RAT Cell Removal	Remove no inter-RAT cells
- inter-RAT cell id	0
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC1
- Band indicator	DCS 1800 or PCS 1900 (dependent on band used)
- BCCH ARFCN	value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)~~1~~
- inter-RAT cell id	1
CHOICE Radio Access Technology	GSM
- Cell individual offset	0
- Cell selection and re-selection info	Not present
- BSIC	BSIC2
- Band indicator	DCS 1800 or PCS 1900 (dependent on band used)
- BCCH ARFCN	value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN)~~7~~
- Cell for measurement	Not present
- inter-RAT measurement quantity	
- Measurement quantity for UTRAN quality estimate	Not present
CHOICE system	GSM
- Measurement quantity	GSM carrier RSSI
- Filter coefficient	0
- BSIC verification required	not required
- inter-RAT reporting quantity	
UTRAN estimated quality	FALSE
CHOICE system	GSM
- Observed time difference to to GSM cell reporting indicator	FALSE
- GSM carrier RSSI reporting indicator	TRUE
- Reporting cell status	
CHOICE reported cell	
- Reported cells within active set or within virtual active set or of the other RAT	
- Maximum number of reported cells	6
CHOICE report criteria	
- Periodical reporting criteria	
- Amount of reporting	Infinity
- Reporting interval	4~~1~~000
Physical channel information elements	

- DPCH compressed mode status info	If the UE requires compressed mode (refer ICS/IXIT), this IE is present and contains the IEs as follows. If the UE does not require compressed mode (refer ICS/IXIT), this IE is not present.
- TGPS reconfiguration CFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS status flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256
- TGPSI	2
- TGPS status flag	Deactivate
- TGCFN	Not present

MEASUREMENT REPORT, if the UE requires compressed mode (refer ICS/IXIT) (Step 1d and step 5a)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN) ~~to "1"~~
- Observed time difference to GSM cell	Check that not present
- GSM carrier RSSI	Check that measurement result is reasonable
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN) ~~to "7"~~
- Observed time difference to GSM cell	Check that not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that not present

MEASUREMENT REPORT, if the UE doesnít requires compressed mode (refer ICS/IXIT) (Step 1d and step 5a)

Information Element	**Value/remark**
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Inter-RAT measured results list"
- Inter-RAT measured result list	
- CHOICE system	GSM
- Measured GSM cells	
- GSM carrier RSSI	Check to see if present
CHOICE BSIC	verified BSIC
- Inter-RAT cell id	Check that is set to 0~~to "0"~~
- Observed time difference to GSM cell	Check that not present
- GSM carrier RSSI	Check that measurement result is reasonable
CHOICE BSIC	Non verified BSIC
- BCCH ARFCN	Check that is set to the correct value according to the GSM band under test (see 3GPP 34.123-1 table 6.5 for details on the ARFCN) ~~to "7"~~
- Observed time difference to GSM cell	Check that not present
Measured results on RACH	Check that not present
Additional Measured results	Check that not present
Event results	Check that not present

HANDOVER FROM UTRAN COMMAND-GSM

The contents of this message is identical to the HANDOVER FROM UTRAN COMMAND-GSM message specified in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Inter-system message - System type - Frequency Band - CHOICE GSM message - Message	 GSM Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band" Single GSM message GSM HANDOVER COMMAND formatted as BIT STRING (1..512). The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate or half rate version 1 and that the indicated target channel for GSM FR does not exist in the GSM cell

HANDOVER FROM UTRAN FAILURE

The contents of this message is identical to the HANDOVER FROM UTRAN FAILURE message specified in [9] TS 34.108 clause 9.

8.3.7.5.5 Test requirement

After step 4 the SS shall receive HANDOVER FROM UTRAN FAILURE message using the old UTRA configuration.

After step 5 the UE shall correctly report the GSM RSSI value.

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th Nov, 2004

Tdoc ⌘T1-041908

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1001** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 4 RRC test case 8.1.3.9
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	21/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘ **34.123-1 section 8.1.3.9.4** specifies the downlink power to be applied for the 3 cells at various time instants of the test execution. The column marked "T0" denotes the initial conditions, while the columns marked "T1" are to be applied subsequently. But the downlink power levels to be applied for cell B and Cell C in columns marked ëT1í (-65dB and ñ70dB) are only just sufficient to trigger Event 1a.

In section **14.1.2.1** of 25.331 the equation that needs to be satisfied in order to trigger event 1a is given:

Equation 1 (Triggering condition for pathloss)

$$10 \cdot LogM_{New} + CIO_{New} \le W \cdot 10 \cdot Log\left(1/\sum_{i=1}^{N_A}(1/M_i)\right) + (1-W) \cdot 10 \cdot LogM_{Best} + (R_{1a} - H_{1a}/2),$$

Equation 2 (Triggering condition for all the other measurement quantities)

$$10 \cdot LogM_{New} + CIO_{New} \ge W \cdot 10 \cdot Log\left(\sum_{i=1}^{N_A} M_i\right) + (1-W) \cdot 10 \cdot LogM_{Best} - (R_{1a} - H_{1a}/2),$$

In the case of test case 8.1.3.9 , parameters **Reporting range**, **W** and **Hysteresis** specified for Event **1a** in System Information Block11 are **5**, **1** and **0** respectivly. If we apply all these values to the above equation 2 with Cell B Downlink power level (-65db) the condition will only just be satisfied to trigger event 1a. In order to make the test case more reliable, considering the SS output powerlevel deviations due to practical reasons, we need to increase the ëT1í Downlink powerlevel settings for CellB and CellC to ñ62db

	and ñ65db respectively.
Summary of change: ⌘	The following changes are made to **34.123-1** section **8.1.3.9.4**: Downlink power to be applied for cell B and cell C in Column marked ëT1í are changed to ñ62db and ñ65db respectively.
Consequences if not approved: ⌘	Test case may fail a conformant UE.

Clauses affected:	⌘	8.1.3.9.4			
Other specs affected:	⌘	**Y** / **N**	Other core specifications	⌘	TS 34.123-3
		X /	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘	(Revision of T1-041702). Affects R99, Rel-4 and Rel-5 UEs			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

After step 9 the UE shall be in idle mode of cell 6.

8.1.3.8 Void

8.1.3.9 RRC Connection Release in CELL_DCH state (Network Authentication Failure): Success

8.1.3.9.1 Definition

8.1.3.9.2 Conformance requirement

1. TS 25.331

If the upper layers request the release of the RRC connection, the UE shall:

1> release all its radio resources;

1> enter idle mode;

1> perform other actions when entering idle mode from connected mode as specified in subclause 8.5.2;

1> if the UE was in CELL_DCH state prior to entering idle mode:

2> consider all cells that were in the active set prior to entering idle mode to be barred according to [4]; and

2> consider the barred cells as using the value "allowed" in the IE "Intra-frequency cell re-selection indicator", and the maximum value in the IE "T_{barred}".

2. TS 24.008

Following a UMTS authentication challenge, the MS may reject the core network, on the grounds of an incorrect AUTN parameter (see 3GPP TS 33.102). This parameter contains two possible causes for authentication failure:

Ö .

SQN failure:

If the MS considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, it shall send a AUTHENTICATION FAILURE message to the network, with the reject cause 'Synch failure' and a re-synchronization token AUTS provided by the SIM (see 3GPP TS 33.102). The MS shall then follow the procedure described in clause 4.3.2.6 (d) of TS 24.008.

Ö .

Authentication failure (reject cause 'synch failure'):

The MS shall send an AUTHENTICATION FAILURE message, with reject cause 'synch failure,' to the network and start the timer T3216.

Ö .

If the timer T3216 expires, then the MS shall behave as described in clause 4.3.2.6.1 of TS 24.008.

Reference

3GPP TS 25.331 clause 8.1.4a.

3GPP TS 24.008 clause 4.3.2.5.1, 4.3.2.6

8.1.3.9.3 Test purpose

To confirm that when the upper layers request the release of the RRC connection, the UE releases signalling radio bearer and its radio resources and goes back to idle mode.

To confirm that the UE enters idle mode, bars the cell for a period T_{barred} and hence performs cell-selection to another (non-barred) cell.

8.1.3.9.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1,2 and 3 are active.

UE: "CS-DCCH+DTCH_DCH" (state 6-9) or " PS-DCCH+DTCH_DCH " (state 6-10) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE.

Test Procedure

Table 8.1.3.9 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" are to be applied subsequently. The exact instants on which these values shall be applied are described in the text in this clause.

Table 8.1.3.9

Parameter	Unit	Cell 1		Cell 2		Cell 3	
		T0	T1	T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1		Ch. 1	
CPICH Ec	dBm/3.84 MHz	-60	-60	-85	-6562	-85	-7065
PCCPCH RSCP	dBm	-60	-60	-85	-6562	-85	-7065

SS switches the downlink transmission power of the 3 cells to the columns "T1" in Table 8.1.3.9. UE transmits a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 and 3 according to IE "Intra-frequency event identity", which is set to '1a' for FDD mode and `1g` for TDD mode in the SYSTEM INFORMATION BLOCK TYPE 11. For FDD, in steps 2 and 3, after the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 2 and then the SS transmits to the UE in cell 1 an ACTIVE SET UPDATE message which includes IE "Radio Link Addition Information", indicating the addition of cell 2 into the active set, on DCCH using AM RLC.

When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS transmits a DOWNLINK DIRECT TRANSFER message. This message contains a NAS message (AUTHENTICATION REQUEST for CS domain or AUTHENTICATION AND CIPHERING REQUEST for PS domain) and an invalid SQN. The UE shall transmit an UPLINK DIRECT TRANSFER message using AM on DCCH. After SS acknowledges the UPLINK DIRECT TRANSFER message, SS shall wait for T3216 or T3320 to expire in the UE. The UE shall then deem that the network has failed the authentication check, release the RRC connection, enter idle mode, bar cell 1 and 2 and perform cell re- selection. Then SS wait for 5 s. SS transmits PAGING TYPE 1 message. The UE shall respond with RRC CONNECTION REQUEST message in cell 3. SS then transmit RRC CONNECTION REJECT message back to UE. SS then waits for T_{barred} to expire (22 minutes) before SS execute generic procedure C.1 in cell 1 to check that UE is in idle mode in cell 1.

Note: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	→		MEASUREMENT REPORT	See specific message contents for this message.
2	←		ACTIVE SET UPDATE	The SS transmit this message on downlink DCCH using AM RLC which includes IE "Radio Link Addition Information" for cell 2. This step will be only applicable for FDD.
3	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2. This step will be only applicable for FDD.
4	←		DOWNLINK DIRECT TRANSFER	Depending on supported CN domain, AUTHENTICATION AND CIPHERING REQUEST message (PS domain) or AUTHENTICATION REQUEST (CS domain) message is embedded in DOWNLINK DIRECT TRANSFER message. An invalid SQN is provided in this message.
5	→		UPLINK DIRECT TRANSFER	After SS acknowledged this message, SS waits for T3216 or T3320 to expire.
6				The SS waits for 5s
7	←		PAGING TYPE 1	
8	→		RRC CONNECTION REQUEST	SS checks that the UE sends this message in cell 3
9	←		RRC CONNECTION REJECT	
10				SS waits 22 minutes for T_{barred} to expire.
11	←→		CALL C.1	SS execute this generic procedure in cell 1. If the test result of C.1 indicates that UE is in idle mode, the test passes, otherwise it fails.

Specific Message Content

MEASUREMENT REPORT (Step 1) (FDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.3 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

MEASUREMENT REPORT (Step 1) (TDD)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- CHOICE Mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell No.1 (TDD)" in clause 6.1 of TS 34.108
- Primary CCPCH RSCP Info	Checked that this IE is absent
- PCCPCH RSCP	ìChecked to see if set to within an acceptable range"
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- CHOICE Mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108
- Primary CCPCH RSCP Info	Checked that this IE is absent
- PCCPCH RSCP	ìChecked to see if set to within an acceptable range"
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- SFN-SFN observed time difference	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- CHOICE Mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell No.3 (TDD)" in clause 6.1 of TS 34.108
- Primary CCPCH RSCP Info	Checked that this IE is absent
- PCCPCH RSCP	ìChecked to see if set to within an acceptable range"
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1g
- Cell measurement event results	
CHOICE Mode	TDD
- Cell parameters Id	Refer to clause titled "Default settings for cell No.2 (TDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 2) (FDD only)

The message to be used in this test is defined in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Radio link addition information	
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as assigned for cell 2
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH can be used.
- DPCH frame offset	Calculated value from Cell synchronisation information
- Secondary CPICH info	Not Present
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE
- Secondary scrambling code	1
- Spreading factor	Refer to TS 34.108 clause 6.10.2.4 "Typical radio parameter sets"
- Code Number	For each DPCH, assign the same code number in the current code given in cell 1.
- Scrambling code change	Not Present
- TPC Combination Index	0
- SSDT Cell Identity	Not Present
- Close loop timing adjustment mode	Not Present
- TFCI Combining Indicator	Not Present
- SCCPCH information for FACH	Not Present

ACTIVE SET UPDATE COMPLETE (Step 3) (FDD only)

Only the message type of this message is checked.

DOWNLINK DIRECT TRANSFER (Step 4)

Use the same message sub-type as found in TS 34.108 clause 9, with the following exceptions.

Information Element	Value/remark
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION REQUEST (CS domain) or AUTHENTICATION AND CIPHERING REQUEST (PS domain) with an invalid SQN value.

UPLINK DIRECT TRANSFER (Step 5)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
CN domain identity	CS domain or PS domain
NAS message	AUTHENTICATION FAILURE(CS domain) or AUTHENTICATION AND CIPHERING FAILURE (PS domain)
Measured results on RACH	Not checked

8.1.3.9.5 Test requirement

At step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 2 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 4 the UE shall transmit an UPLINK DIRECT TRANSFER messages using AM on DCCH.

After step 7, the UE shall transmit RRC CONNECTION REQUEST message using TM RLC on CCCH in cell 3.

After step 10 the UE shall be in idle mode in cell 1.

<< END OF MODIFIED SECTION >>

3GPP TSG-T WG1 Meeting #25
Malta, 1-5 Nov, 2004

T1-041909
Agenda 8.8.3

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1002** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 2 RRC test case 8.3.1.21
Source:	⌘	Motorola and MCC 160
Work item code:	⌘	TEI
Date:	⌘	28/10/2004
Category:	⌘	F
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Table 8.3.1.21-1, configures three cells belonging to three different PLMNís on one frequency. This is not a realistic configuration. A more realistic configuration would be to have them on three different frequencies In cells belonging to different frequencies, FACH Measurement Occasion needs to be enabled, for UEís not capable of measuring on non-used frequencies, while listening to S-CCPCH. With default values of Qqualmin and power level settings specified in the test, UE is not mandated to do measurements on other frequencies, as per clause 5.2.6.1.1 of 25.304. Hence, for UE to make interfrequency measurements, Qqualmin must be increased.
Summary of change:	⌘	Cells changed to Cell 4 (Channel 2) and Cell 7 (Channel 3). Added steps in expected sequence to send SIBs 3 and 11 to update Qqualmin and enable FACH Measurement Occasions.
Consequences if not approved:	⌘	Test may incorrectly fail a conformant mobile

Clauses affected:	⌘	8.3.1.21

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Affects R99, REL-4, REL-5.

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Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.1.21 Cell Update: Cell reselection to cell of another PLMN belonging to the equivalent PLMN list

8.3.1.21.1 Definition

8.3.1.21.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1.- Cell reselection:

- if none of the criteria for performing cell update with the causes specified above in the current clause is met; and
- if the UE is in CELL_FACH or CELL_PCH state; and
- if the UE performs cell re-selection or the variable C_RNTI is empty:
  - perform cell update using the cause "cell reselection".

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.
   - The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.
   - The cell is not barred.
   - The cell is not part of the list of "forbidden LAs for roaming"
   - The cell selection criteria are fulfilled.
3. The Mobile Equipment shall store a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the network that downloaded the list. The stored list shall not be deleted when the MS is switched off. The stored list shall be deleted if the SIM is removed. The maximum number of possible entries in the stored list is six.

Reference

3GPP TS 25.331 clause 8.3.1.2.

3GPP TS 25.304 clause 4.3.

3GPP TS 24.008 clause 4.4.1.

8.3.1.21.3 Test purpose

1 To confirm that the UE executes a cell update procedure after a successful reselection to another UTRA cell with a PLMN identity different from the original cell but with a PLMN identity that is part of the equivalent PLMN list in the UE.

2. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection.

NOTE: Verifies conformance requirement 1, 2 and 3.

3. To confirm that the UE refrains from executing a cell update procedure to a better UTRA cell with another PLMN identity when that PLMN identity is not part of the equivalent PLMN list in the UE.

NOTE: Verifies conformance requirement 1, 2 and 3.

NOTE: Test case in 8.3.1.1 is a test where the UE reselects to a cell with the same PLMN identity as the registered PLMN.

8.3.1.21.4 Method of test

Initial Condition

System Simulator: 3 cells - Cell 1 is active, with the downlink transmission power shown in column marked "T0" in table 8.3.1.21, while cell ~~2~~ 4 and cell ~~3~~ 7 is inactive.

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

UE: Shall have stored equivalent PLMN list containing PLMN-1 and PLMN-2. The equivalent PLMN list stored in the UE shall not contain PLMN-3.

Test Procedure

The SS activates Cell 1~~-3~~, 4 & 7 according table 8.3.1.21.

Table 8.3.1.21

Parameter	Unit	Cell 1			Cell ~~2~~4			Cell 7~~3~~		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Ch. 1			Ch. ~~1~~2			Ch. ~~1~~3		
PLMN identity		PLMN-1			PLMN-2			PLMN-3		
CPICH Ec (FDD)	dBm	-60	-72	-72	Cell 2 is switched off	-60	-66	Cell 3 is switched off	Cell 3 is switched off	-60
P-CCPCH RSCP (TDD)	dBm	-62	-68	-62	Cell 2 is switched off	-62	-68	Cell 3 is switched off	Cell 3 is switched off	-62

Table 8.3.1.21-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently.

a) At T1, the SS activates Cell ~~2~~4, and monitors Cell ~~2~~ 4 for received messages from UE.

b) UE re-selects to Cell ~~2~~4, and sends a CELL UPDATE. The SS shall reply with CELL UPDATE CONFIRM message on downlink DCCH.

c) At T2, the SS activates Cell ~~3~~7, and monitors Cell ~~3~~ 7 for received messages from UE.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is camped on Cell 1 and registered to PLMN1
1a	←		MASTER INFORMATION BLOCK SCHEDULING BLOCK 1 SYSTEM INFORMATION BLOCK TYPE 3 SYSTEM INFORMATION BLOCK TYPE 11	SS transmits MIB and SB1 with a new value Tag. Simultaneously SS transmits modified SIB 3 and 11, with contents given in specific message contents
1b	←		SYSTEM INFORMATION CHANGE INDICATION	Including 'MIB Value TAG' set to the value currently being transmitted
1c				Wait 5 seconds to allow UE to read new system information
2	→		CELL UPDATE	At T1: Sent in Cell ~~2~~4 The value "cell reselection" set in IE "Cell update cause".
3	←		CELL UPDATE CONFIRM	
4	→		UTRAN MOBILITY INFORMATION CONFIRM	
5				At T2: No message sent by UE

Specific Message Contents

System Information Block type 3 (Step 1a)

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Qqualmin	-16

System Information Block type 11 (Step 1a)

Use the same message type found in clause 6.1 of TS 34.108, with the following exceptions:

Information Element	Value/remark
FACH measurement occasion info	
- FACH Measurement occasion cycle length coefficient	2
- Inter-frequency FDD measurement indicator	TRUE
- Inter-frequency TDD measurement indicator	FALSE
- Inter-RAT measurement indicators	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 1b)

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value tag	Set equal to Value tag sent in modified MIB in step 1a

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type titled "CELL UPDATE CONFIRM message" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
- New C-RNTI	'1010 1010 1010 1010'

8.3.1.21.5 Test requirement

After step 1c, the UE shall send a CELL UPDATE at T1.

After step 4, the UE shall refrain from sending a cell update (or any other message) after T2.

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Malta, 1-5 Nov, 2004

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Agenda 8.8.3

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1003** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 3 RRC test case 8.3.2.11
Source:	⌘	Motorola and MCC 160
Work item code:	⌘	TEI
Date:	⌘	28/10/2004
Category:	⌘	F
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Table 8.3.2.11-1, configures three cells belonging to three different PLMNís on one frequency. This is not a realistic configuration. A more realistic configuration would be to have them on three different frequencies. With the default values of Qqualmin and Sintersearch and power level settings specified in the test, UE is not required to do measurements on other frequencies.
Summary of change:	⌘	Changed cells to Cell 4 (Channel 2) and Cell 7 (Channel 3). Added steps in expected sequence to modify SIB 3 to update Qqualmin.
Consequences if not approved:	⌘	Test may fail a conformant mobile.
Clauses affected:	⌘	8.3.2.11

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘ Affects R99, REL-4, REL-5.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.2.11 URA Update: Cell reselection to cell of another PLMN belonging to the equivalent PLMN list

8.3.2.11.1 Definition

8.3.2.11.2 Conformance requirement

1. A UE in URA_PCH state shall initiate the URA update procedure in the following cases:

   - URA reselection:

     - if the UE detects that the current URA assigned to the UE, stored in the variable URA_IDENTITY, is not present in the list of URA identities in system information block type 2; or

     - if the list of URA identities in system information block type 2 is empty; or

     - if the system information block type 2 can not be found:

       - perform URA update using the cause "change of URA".

2. A "suitable cell" is a cell on which the UE may camp on to obtain normal service. Such a cell shall fulfil all the following requirements.

   - The cell is part of the selected PLMN or, of a PLMN considered as equivalent by the UE according to the information provided by the NAS.

   - The cell is not barred, see clause 5.3.1.1 in TS 25.304.

   - The cell is not part of the list of "forbidden LAs for roaming" TS 22.011

   - The cell selection criteria are fulfilled, see clause 5.2.3.1.2 in TS 25.304.

3. The Mobile Equipment shall store a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the network that downloaded the list. The stored list shall not be deleted when the MS is switched off. The stored list shall be deleted if the SIM is removed. The maximum number of possible entries in the stored list is six.

Reference

3GPP TS 25.331 clause 8.3.1.2.

3GPP TS 25.304 clause 4.3.

3GPP TS 24.008 clause 4.4.1.

8.3.2.11.3 Test purpose

1. To confirm that the UE executes a URA update procedure after a successful reselection of another UTRA cell with a URA identity that is not the URA of the UE and with a PLMN identity different from the original cell but with a PLMN that is part of the equivalent PLMN list in the UE.

NOTE: Verifies conformance requirements 1, 2 and 3.

2. To confirm that the UE refrains from executing a URA update procedure to a better UTRA cell with another PLMN identity when that PLMN identity is not part of the equivalent PLMN list in the UE.

NOTE: Test case in 8.3.2.1 is a test where the UE reselects to a cell with the same PLMN identity as the registered PLMN.

8.3.2.11.4 Method of test

Initial Condition

System Simulator: 3 cells - Cell 1 is active, with the downlink transmission power shown in column marked "T0" in table 8.3.2.1-1, while cell ~~2~~ 4 and cell ~~3~~ 7 is inactive.

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

UE: Shall have stored equivalent PLMN list containing PLMN-1 and PLMN-2. The equivalent PLMN list stored in the UE shall not contain PLMN-3. The UE shall also have stored the URA identity URA-ID 1 from the list of URA-IDs in cell 1.

Test Procedure

Table 8.3.2.11-1

Parameter	Unit	Cell 1			Cell ~~2~~4			Cell ~~3~~7		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Ch. 1			Ch. ~~1~~2			Ch. ~~1~~3		
PLMN identity		PLMN-1			PLMN-2			PLMN-3		
URA identity		URA-ID 1			URA-ID 2			URA-ID 3		
CPICH Ec (FDD)	dBm/ 3.84 MHz	-73	-79	-79	Cell 2 is switched off	-73	-73	Cell 3 is switched off	Cell 3 is switched off	-66
P-CCPCH RSCP (TDD)	dBm	-62	-68	-68	Cell 2 is switched off	-62	-68	Cell 3 is switched off	Cell 3 is switched off	-62

Table 8.3.2.11-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Columns marked "T0" denote the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently.

a) At T0, the SS activates Cell 1.

b) At T1, the SS activates Cell ~~2~~4, and monitors Cell ~~2~~ 4 for received messages from UE.

c) UE re-selects to Cell ~~2~~4, and sends a URA UPDATE message. The SS replies with an URA UPDATE CONFIRM message on the downlink CCCH.

d) At T2, the SS activates Cell ~~3~~7, and monitors Cell ~~3~~ 7 for received messages from UE.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				UE is in URA_PCH state, camped on Cell 1 and registered to PLMN1. SS applies downlink transmission power settings according to values in column "T0" of table 8.3.2.11-1.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE **3**	Modified SIB 3 and MIB
1b	←		PAGING TYPE 1	Include IE "BCCH modification info"
1c				Wait 5 seconds to allow UE to read new system information
1d~~a~~				SS applies downlink transmission power settings according to values in column "T1" of table 8.3.2.11-1.
2	→		URA UPDATE	The UE moves to CELL_FACH state and transmits this message in Cell ~~2~~4. The value "change of URA" shall be set in IE "URA update cause".
3	←		URA UPDATE CONFIRM	The value "URA_PCH" set in IE "RRC State Indicator".
4				SS applies downlink transmission power settings according to values in column "T2" of table 8.3.2.11-1.
5				SS monitors that the UE does not send a URA UPDATE message or any other message.

Specific Message Contents

System Information Block type 3 (Step 1a)

Use the same message type found in clause 6.1.0b of TS 34.108, with the following exceptions:

- Qqualmin -16

PAGING TYPE 1 (Step 1b)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Paging record list	Not Present
BCCH modification info	
MIB Value tag	Set to latest value transmitted in MIB
BCCH modification time	Not present

URA UPDATE (Step 2)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:.

Information Element	Value/remark
URA Update Cause	Check to see if set to 'change of URA'

URA UPDATE CONFIRM (Step 3)

Use the same message sub-type found in TS 34.108 clause 9.

8.3.2.11.5 Test requirement

After Step 1d the UE shall send a URA UPATE message.

After Step 4 the UE shall refrain from sending a URA update (or any other message).

3GPP TSG-T1 Meeting #25
St Paulís Bay, Malta, 1st - 5th November 2004

Tdoc ⌘ T1-041911

CR-Form-v7.1

CHANGE REQUEST

⌘ **34.123-1** **CR** **1004** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Clarification in test case 11.2.2.2
Source:	⌘	NEC Corporation
Work item code:	⌘	TEI
Date:	⌘	04/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	In ëExpected sequenceí Step 6, it is not clear why SS has to wait T3381 expiry.
Summary of change:	⌘	1. In ëExpected sequenceí Step 4, added T3381 in comment. 2. In ëTest purposeí replaced ënetworkí with System Simulator.
Consequences if not approved:	⌘	Expected sequence will remain unclear.

Clauses affected:	⌘	11.2.2.2.3, 11.2.2.2.4

Other specs affected: ⌘	Y	N		
		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Applicable for all previous releases.

How to create CRs using this form:
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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

11.2.2.2 UE initiated PDP Context Modification not accepted by the network

11.2.2.2.1 Definition

11.2.2.2.2 Conformance requirement

In order to initiate the procedure, the UE sends the MODIFY PDP CONTEXT REQUEST message to the network, enters the state PDP-MODIFY-PENDING and starts timer T3381. The message may contain the requested new QoS and/or the TFT and the requested LLC SAPI (used in GSM).

Upon receipt of a MODIFY PDP CONTEXT REQUEST message, the network may reject the UE initiated PDP context modification request by sending a MODIFY PDP CONTEXT REJECT message to the UE. The message shall contain a cause code that typically indicates one of the following:

26: insufficient resources;

32: Service option not supported;

41: semantic error in the TFT operation;

42: syntactical error in the TFT operation;

44: semantic errors in packet filter(s);

45: syntactical errors in packet filter(s);

95 - 111: protocol errors.

Upon receipt of a MODIFY PDP CONTEXT REJECT message, the UE shall stop timer T3381 and enter the state PDP-ACTIVE.

Reference

3GPP TS 24.008 clauses 6.1.3.3, 6.1.3.3.2 and 6.1.3.3.3.

11.2.2.2.3 Test purpose

To test the behaviour of the UE upon receipt of a MODIFY PDP CONTEXT REJECT message from the ~~network~~System Simulator.

11.2.2.2.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of activating a PDP context

Test procedure

A PDP context is activated by the user and accepted by the SS. The UE initiates a PDP context modification by sending a MODIFY PDP CONTEXT REQUEST message. The SS rejects the context modification and replies with the MODIFY PDP CONTEXT REJECT with cause set to # 26: insufficient resources.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
1a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call
1b	→		SERVICE REQUEST	
1c	SS			The SS starts ciphering and integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a	SS			The SS establishes the RAB
3	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
4	→		MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION)	The UE ~~R~~requests ~~the~~ modification of ~~a~~ the PDP context and starts timer T3381
5	←		MODIFY PDP CONTEXT REJECT	The SS rejects PDP context modification, SM cause= #26
5a				The SS starts T3381
6	SS			Wait for T3381 ~~seconds~~ expiry to ensure no further MODIFY PDP CONTEXT REQUEST (UE TO NETWORK DIRECTION) messages are sent by the UE

Specific message contents

None.

11.2.2.2.5 Test requirements

After receiving MODIFY PDP CONTEXT REJECT message from the ~~netwok~~SS, the UE shall not resend PDP context modification request.

<END OF MODIFIED SECTION>

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘T1-041912

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1005** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 1 RRC test case 8.1.7.1b
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	03/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Revision of T1-041510. Declared the last change described below to be a ìDeprecated alternative valueî as defined in clause 9.1.1 by T1-041965 . In **clause 8.1.7.1b.4** in the SECURITY MODE COMMAND message at step 6, the IE ì**UE system specific security capability**î is not included and ì**Downlink integrity protection activation info**î for **RB2** is mentioned as 0. However, clause 10.2.43 in TS 25.331 specifies that in the SECURITY MODE COMMAND message the IE ì**UE system specific security capability**î is included if the IE "Inter-RAT UE radio access capability" was included in RRC CONNECTION SETUP COMPLETE message. The ì**Downlink integrity protection activation info**î for **RB2** should be the Current RRC SN. The SECURITY MODE COMAND specific message contents at step 2 incorrectly refers to to the default message contents in TS 34.108 clause 9.1.1.
Summary of change:	⌘	Clause 8.1.7.1b.4 is modified to update the specific message contents of the SECURITY MODE COMMAND message so that the IE "**Inter-RAT UE radio access capability**" is included in the message and ì**Downlink integrity protection activation info**î for **RB2** is set as Current RRC SN. Remove incorrect reference to default contents in 34.108 clause 9.1.1
Consequences if not approved:	⌘	Test case prose will not be aligned with TS 25.331.

Clauses affected:	⌘	8.1.7.1b.4			
Other specs affected:	⌘	Y / N			
			X	Other core specifications	⌘
		X		Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects R99, Rel4 and Rel5 UEs Approval of this CR depends upon approval of T1-041965			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

8.1.7.1b Security mode command in CELL_DCH state (PS Domain)

8.1.7.1b.1 Definition

8.1.7.1b.2 Conformance requirement

Upon reception of the SECURITY MODE COMMAND message, the UE shall:

1> if neither IE "Ciphering mode info" nor IE "Integrity protection mode info" is included in the SECURITY MODE COMMAND:

2> set the variable INVALID_CONFIGURATION to TRUE.

Ö

1> prior to sending the SECURITY MODE COMPLETE message:

Ö

2> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

3> include and set the IE "Uplink integrity protection activation info" to the value of the variable INTEGRITY_PROTECTION_ACTIVATION_INFO for each signalling radio bearer;

Ö

2> start applying the new integrity protection configuration in the uplink for signalling radio bearer RB2 from and including the transmitted SECURITY MODE COMPLETE message;

2> transmit the SECURITY MODE COMPLETE message on the uplink DCCH in AM RLC;

Ö

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

Ö

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

1> apply the new ciphering configuration as follows:

2> consider an activation time in downlink to be pending:

Ö

3> for AM-RLC until all AMD PDUs with sequence numbers up to and including activation time ñ1 have been received;

2> if the IE "Radio bearer downlink ciphering activation time info" is present:

3> apply the following procedure for each radio bearer and signalling radio bearers using RLC-AM or RLC-UM indicated by the IE "RB identity":

Ö

4> select an "RLC send sequence number" at which (activation) time the new ciphering configuration shall be applied in uplink for that radio bearer according to the following:

Ö

6> set a suitable value that would ensure a minimised delay in the change to the latest security configuration.

Ö

5> use the old ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers smaller than the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

5> use the new ciphering configuration for the transmitted and received RLC PDUs with RLC sequence numbers greater than or equal to the corresponding RLC sequence numbers indicated in the IE "Radio bearer uplink ciphering activation time info" sent to UTRAN and in the received IE "Radio bearer downlink ciphering activation time info" received from UTRAN, respectively;

Ö

If the IE "Integrity protection mode info" is present and if the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to FALSE, the UE shall:

Ö

1> if IE "Integrity protection mode command" has the value "modify" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was included in SECURITY MODE COMMAND:

Ö

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each signalling radio bearer n, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info";

Ö

4> select a value of the RRC sequence number at which (activation) time the new integrity protection configuration shall be applied in uplink for that signalling radio bearer according to the following:

Ö

6> set a suitable value that would ensure a minimised delay in the change to the latest integrity protection configuration.

Ö

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Uplink integrity protection activation info", included in the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration;

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info";

NOTE: For signalling radio bearers that have a pending activation time as set for integrity protection by a previous procedure changing the integrity protection configuration, UTRAN should set this value in IE "Downlink integrity protection activation info".

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration.

Reference

3GPP TS 25.331 clauses 8.1.12.3, 8.6.3.4, 8.6.3.5.

8.1.7.1b.3 Test purpose

To confirm that the UE modifies an integrity protection configuration and applies new keys on reception of a correct SECURITY MODE COMMAND message.

To confirm that the UE modifies a ciphering configuration in the uplink and downlink and applies new keys according to transmitted activation times. Also confirms that the UE accepts a new ciphering configuration for a RB when ciphering is started for SRBs.

To confirm that after the UE receives a SECURITY MODE COMMAND message, it transmits a SECURITY MODE COMPLETE message to the UTRAN using the old ciphering configuration and new integrity protection configuration.

To confirm that UE send SECURITY MODE FAILURE message when SS transmits a SECURITY MODE COMMAND message with a non comprehended critical extension.

To confirm that the UE sends a SECURITY MODE FAILURE message when UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.1b.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state with integrity protection and ciphering started for SRBs. The SS initiates an Authentication and Ciphering procedure, which will result in the generation of a new security keyset (CK/IK).

The SS transmits a SECURITY MODE COMMAND message which contains an unexpected critical message extension. The UE shall respond by sending SECURITY MODE FAILURE message on the DCCH.

Then SS transmits a SECURITY MODE COMMAND message with IEs "Ciphering mode info" and "Integrity protection mode info both omitted". Again the UE shall not trigger any ciphering algorithm and it shall respond by sending SECURITY MODE FAILURE message on the DCCH.

Next, the SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE. The UE shall check the integrity check info and shall start to configure ciphering in downlink according to the SECURITY MODE COMMAND message.

Then UE shall transmit a SECURITY MODE COMPLETE message which contains uplink activation times and also the correct "Integrity check info" IE using the new integrity protection configuration. SS records the uplink ciphering activation time for RB 2.

Next, the SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS shall send UE CAPABILITY INFORMATION CONFIRM messages to the UE for each received UE CAPABILITY INFORMATION message from the UE.

This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY INFORMATION messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity check info" IE. This can be verified in the SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				RRC connected state on DCH_state.
1a	←		AUTHENTICATION AND CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
1b	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
2	←		SECURITY MODE COMMAND	See message content.
3	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "Protocol Error" and IE "Protocol Error Information" shall be set to "Message extension not comprehended".
4	←		SECURITY MODE COMMAND	See message content.
5	→		SECURITY MODE FAILURE	IE "Failure Cause" shall be set to "invalid configuration".
6	←		SECURITY MODE COMMAND	See specific message contents.
7	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration and with the new integrity protection configuration. SS records the uplink ciphering activation time for RB 2.
8	←		UE CAPABILITY ENQUIRY	SS repeats step 8, 9 and 10 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
9	→		UE CAPABILITY INFORMATION	UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
10	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

~~Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:~~

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Critical extensions	íFFíH

SECURITY MODE FAILURE (Step 3)

Message content is the same as found in Clause 9 of TS 34.108, with the exception of the following IEs:

Information Element	Value/remark
Failure cause Failure cause Protocol error information Protocol error cause	 Protocol error Message extension not comprehended

SECURITY MODE COMMAND (Step 4)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Integrity check info Message authentication code RRC Message sequence number Security Capability Ciphering mode info Integrity protection mode info CN domain identity	 Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I. Next RRC SN Same as originally sent by UE (and stored in SS) Not Present Not Present PS Domain

SECURITY MODE FAILURE (Step 5)

Message content is the same as found in Clause 9 of TS 34.108, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Invalid configuration

SECURITY MODE COMMAND (Step 6)

Information Element	Condition	Value/remark
RRC transaction identifier	A1, A2	0
Integrity check info		
Message authentication code		Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number		Next RRC SN
Security Capability		Same as originally sent by UE (and stored in SS)
Ciphering mode info		
Ciphering mode command		Start/restart
Ciphering algorithm		UEA1
Activation time for DPCH		Not Present
Radio bearer downlink ciphering activation time info		
RB Identity		1
RLC sequence number		Current RLC SN
RB Identity		2
RLC sequence number		Current RLC SN + 2
RB Identity		3
RLC sequence number		Current RLC SN
RB Identity		4
RLC sequence number		Current RLC SN
RB Identity		20
RLC sequence number		Current RLC SN
Integrity protection mode info		
Integrity protection mode command		Modify
Downlink integrity protection activation info		Current RRC SN for SRB0 Current RRC SN for SRB1 0 (Deprecated alternative value ìCurrent RRC SN for SRB2î) Current RRC SN for SRB3 Current RRC SN for SRB4
Integrity protection algorithm		UIA1
CN domain identity		PS Domain
UE system specific security capability	A1	Not Present
UE system specific security capability - Inter-RAT UE security capability - CHOICE *system* - GSM security capability	A2	GSM The indicated algorithms must be the same as the algorithms supported by the UE as indicated in the IE " UE system specific capability " in the RRC CONNECTION SETUP COMPLETE message.

Condition	Explanation
A1	UE not supporting GSM
A2	UE supporting GSM

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

SECURITY MODE COMPLETE (Step 7)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Uplink integrity protection activation info	
- RRC message sequence number list	
-RRC message sequence number	Check to see if the RRC SN for RB 0 is present
-RRC message sequence number	Check to see if the RRC SN for RB 1 is present
-RRC message sequence number	Check to see if the RRC SN for RB 2 is present
-RRC message sequence number	Check to see if the RRC SN for RB 3 is present
-RRC message sequence number	Check to see if the RRC SN for RB 4 is present
Radio bearer uplink ciphering activation time info	
- Radio bearer activation time	
- RB Identity	1
- RLC sequence number	Check to see if the RLC SN for RB1is present
- RB Identity	2
- RLC sequence number	SS records this value. See step 8 in 'expected sequence'
- RB Identity	3
- RLC sequence number	Check to see if the RLC SN for RB3 is present
- RB Identity	4
- RLC sequence number	Check to see if the RLC SN for RB4 is present
- RB Identity	20
- RLC sequence number	Check to see if the RLC SN for RB20 is present

8.1.7.1b.5 Test requirement

After step 2 the UE shall transmit a SECURITY MODE FAILURE message to report the protocol error detected in the first SECURITY MODE COMMAND message.

After step 4 the UE shall transmit a SECURITY MODE FAILURE message to report on the invalid configuration detected in the second SECURITY MODE COMMAND message.

At step 7 SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct according to the new integrity protection configuration (new key and HFN set to zero).

After step 7 SS verifies that all uplink signalling messages on RB2 are integrity protected with the new integrity protection configuration.

After uplink ciphering activation time has elapsed, SS verifies that the UE CAPABILITY INFORMATION message received is ciphered with the new ciphering configuration asindicated in the SECURITY MODE COMMAND (Step 6) message.

After downlink ciphering activation time has elapsed, SS shall apply ciphering to all downlink messages using the new ciphering configuration. At least one more cycle between step 8 and step 10 shall be repeated correctly after activation time on both directions has elapsed and the messages on both direction shall be ciphered and integrity protected.

<< END OF MODIFIED SECTION >>

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st - 5th Nov 2004

Tdoc ⌘T1-041913

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1006** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to GCF Package 3 RAB test cases 14.2.51b.1 & 14.2.38c (Revision of T1-041644)
Source:	⌘	Rohde & Schwarz/ Nokia
Work item code:	⌘	TEI
Date:	⌘	01/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘

14.2.51b.1

========

In order to align with the TTCN. It is necessary to include DL TFC 5 for subtests 6, 7, 8 and 9 and UL TFC4 for subtests 7, 8 and 9 as described in the approval CR for this test case (T1s040570.doc):

1. In Down Link RB10 and RB20 have the same TTI (20 ms). There is a condition where 30 PDUs should be sent on RB 20 and 60 PDUs sent on RB10. When the initial 30 PDUs are sent in both RB 20 and RB 10, there are 30 more PDUs that needs to be sent on RB10. The 30 PDUs can only be sent if TFC 5 (TF1 in RB10) is allowed. Therefore TFC5 (TF1 in RB10) is needed in the DL for subtests 6, 7, 8 and 9

2. In the RB20 (AM mode) acknowledge PDUs must be sent sometimes taking the Transport format used to send the data message. For example if the transport format used is TF2 for UL (2 blocks in RB20) when the ACK PDUs must be sent it takes one of the blocks so 1 data blocks plus 1 ACK PDU are sent instead of the 2 data PDUs. The remain data PDU will be sent the next tti but this is possible only if there is a suitable TF available.

   Therefore UL_TFC4 (TF1, TF1, TF0) is also required to take into account of the data on RB20 and on RB10 as well. If this TFC is not allowed then the data on RB10 can get lost when transmitting in the same TTI.

14.2.38c

======

This is to propose a change in the allowed set of TFCI in transport format

combination Control for Sub-tests 7,8,10,11,13 and 14, which otherwise could cause a conformant UE to fail the test.

1. The reason is that in all these sub-tests, the AM status PDUS sent on the radio bearer 8, sometimes occupy the space of a data block, would thereby cause subsequent transport blocks to be of a restricted TFC. This makes UE unable to loop back all the received PDUs, causing UE to fail the test.

   For subtests 7,10,13, there is no available combination for UE to send 0*144, 1*336, 1*39, 0*103, 0*81 (SRB, RB8, RB5, RB6, RB7). This means, UE would not be able to send data block of size 1*39 at the same time as the PS bearer sending an AM status PDU.

   So in order to prevent this, the following combination should be added to the allowed list of TFCIs in Transport Format Combination Control message for looping data on bearers RB5 and RB8.

   UL_TFC4 - 1*39 0*103 0*60 1*336 0*144

2. Similarly, for subtest 8,11,14, UE do not have available combination to send 0*144, 1*336, 1*81, 1*103, 1*60 (SRB, RB8, RB5, RB6, RB7), meaning 1*81 could not be sent at the same time as the PS bearer sending an AM status PDU.

   This means the following TFCI has to be added to the allowed list in the message Transport Format Combination Control for the mentioned sub-tests.

   UL_TFC5 - 1*81 1*103 1*60 1*336 0*144

Summary of change: ⌘ 14.2.51b.1

====

1. Added DL_TFC5 (TF, TF0, TF0) in the ìImplicitely tested columnî for subtests 6, 7, 8 and 9.

2. Added UL_TFC4 (TF1, TF1, TF0) in the ìImplicitely tested columnî and ìRestricted UL TFCIsî coloumn for subtests 7, 8 and 9.

14.2.38c

=======

1. UL_TFCI 4 has been included in the ìImplicitely tested columnî and ìRestricted UL TFCIsî for sub-test 7,10,13.

2. UL_TFCI 5 has been included in the ìImplicitely tested columnî and ìRestricted UL TFCIsî for sub-test 8,11,14

Consequences if not approved: ⌘ The test case will fail a conformant UE.

Clauses affected: ⌘ 14.2.51b.1 & 14.2.38c.3 sub-tests

Other specs Affected: ⌘

Y	N	
	X	Other core specifications
	X	Test specifications
	X	O&M Specifications

⌘

Other comments: ⌘ This change aligns the prose with the TTCN.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14.2.51b Conversational / unknown / UL:64 DL:64 kbps / CS RAB + Interactive or Background / UL:16 DL:64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.51b.1 Conversational / unknown / UL:64 DL:64 kbps / CS RAB / 20 ms TTI + Interactive or background / UL:16 DL:64 kbps / PS RAB

14.2.51b.1.1 Conformance requirement

See 14.2.4.1.

14.2.51b.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.51b for the 20 ms TTI case.

14.2.51b.1.3 Method of test

See 14.1.2 for test procedure.

For the PS UL:16/DL:64 kbps radio bearer the downlink TTI is 20ms while the uplink TTI is 40ms. As the SS will send one DL SDU every 20 ms then the UE test loop function will return 2 UL SDUs per uplink TTI. To not cause uplink transmission buffer overflow then the UL RLC SDU size should be chosen such that the UE will transmit 2 RLC SDUs per uplink TTI. For the case when the transport format under test does not allow for 2 SDUs to fit into the transport format size without requiring concatenation then the UL RLC SDU size shall be chosen such that one SDU is returned per uplink TTI.

Uplink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 16 kbps, 40 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF0, TF1, TF0)
UL_TFC2	(TF0, TF2, TF0)
UL_TFC3	(TF1, TF0, TF0)
UL_TFC4	(TF1, TF1, TF0)
UL_TFC5	(TF1, TF2, TF0)
UL_TFC6	(TF0, TF0, TF1)
UL_TFC7	(TF0, TF1, TF1)
UL_TFC8	(TF0, TF2, TF1)
UL_TFC9	(TF1, TF0, TF1)
UL_TFC10	(TF1, TF1, TF1)
UL_TFC11	(TF1, TF2, TF1)

Downlink TFS:

	TFI	RB5 (Conv. 64 kbps)	RB6 (I/B 64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x640	0x336	0x148
	TF1, bits	2x640	1x336	1x148
	TF2, bits	N/A	2x336	N/A
	TF3, bits	N/A	3x336	N/A
	TF4, bits	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF0, TF1, TF0)
DL_TFC2	(TF0, TF2, TF0)
DL_TFC3	(TF0, TF3, TF0)
DL_TFC4	(TF0, TF4, TF0)
DL_TFC5	(TF1, TF0, TF0)
DL_TFC6	(TF1, TF1, TF0)
DL_TFC7	(TF1, TF2, TF0)
DL_TFC8	(TF1, TF3, TF0)
DL_TFC9	(TF1, TF4, TF0)
DL_TFC10	(TF0, TF0, TF1)
DL_TFC11	(TF0, TF1, TF1)
DL_TFC12	(TF0, TF2, TF1)
DL_TFC13	(TF0, TF3, TF1)
DL_TFC14	(TF0, TF4, TF1)
DL_TFC15	(TF1, TF0, TF1)
DL_TFC16	(TF1, TF1, TF1)
DL_TFC17	(TF1, TF2, TF1)
DL_TFC18	(TF1, TF3, TF1)
DL_TFC19	(TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC11	UL_TFC1, UL_TFC7	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC7	RB5: 1280 RB6: 312 (note 3)	RB5: No data RB6: 312
2	DL_TFC2, DL_TFC12	UL_TFC2 ,UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 1280 RB6: 312 (note 4)	RB5: No data RB6: 632
3	DL_TFC3, DL_TFC13	UL_TFC2, UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 1280 RB6: 312 (note 4)	RB5: No data RB6: 952
4	DL_TFC4, DL_TFC14	UL_TFC2 ,UL_TFC8	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC8	RB5: 1280 RB6: 312 (note 4)	RB5: No data RB6: 1272
5	DL_TFC5, DL_TFC15	UL_TFC3 ,UL_TFC9	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1280 RB6: 312	RB5: 1280 RB6: No data
6	DL_TFC6, DL_TFC16	UL_TFC4, UL_TFC10	DL_TFC0, DL_TFC5, DL_TFC10, UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC9, UL_TFC10	RB5: 1280 RB6: 312 (note 3)	RB5: 1280 RB6: 312
7	DL_TFC7, DL_TFC17	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC5, DL_TFC10, UL_TFC0, UL_TFC4, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 1280 RB6: 312 (note 4)	RB5: 1280 RB6: 632
8	DL_TFC8, DL_TFC18	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC5, DL_TFC10, UL_TFC0, UL_TFC4, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC9, UL_TFC11	RB5: 1280 RB6: 312 (note 4)	RB5: 1280 RB6: 952
9	DL_TFC9, DL_TFC19	UL_TFC5, UL_TFC11	DL_TFC0, DL_TFC5, DL_TFC10, UL_TFC0, UL_TFC4, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6, UL_TFC8,	RB5: 1280 RB6: 312 (note 4)	RB5: 1280 RB6: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
				UL_TFC9, UL_TFC11		

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC3 and UL_TFC6 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB6: Test data size has been set to DL TFS size under test minus 8 bits (size of 7 bit length indicator and expansion bit).
NOTE 3: RB6 (TF1): For sub-tests where uplink transport format TF1 (1x336) is used then no adoptation to the difference in downlink TTI (20 ms) and uplink TTI (40ms) is possible as this would require the UE to concatenate 2 SDUs into one PDU. For these sub-tests the UL RLC SDU size is set equal to the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).
NOTE 4: RB8 (TF2): For sub-tests where uplink transport formats TF2 (2x336) is used then to adopt to the difference in downlink TTI (20 ms) and uplink TTI (40ms) the UL RLC SDU size has been chosen such that 2 SDUs will be returned per uplink TTI. I.e. the UL RLC SDU size is set equal to half the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

14.2.51b.1.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15a and step 15b the UE shall return
   - for sub-test 1: RLC SDUs on RB6 having the same content as sent by SS; and no data shall be received on RB5.
   - for sub-test 2: RLC SDUs on RB6 having the first 312 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5.
   - for sub-test 3, 4: RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
   - for sub-test 5: RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 6 : RLC SDUs on RB5 and RB6 having the same content as sent by SS
   - for sub-test 7 : RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
   - for sub-test 8 , 9 : RLC SDUs on RB5 having the same content as sent by SS; and RLC SDUs on RB6 having the content equal to the first 312 bits of the test data sent by the SS in downlink
4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

14.2.38c Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:32 DL:32 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH.

14.2.38c.1 Conformance requirement

See 14.2.4.1.

14.2.38c.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.38c.

14.2.38c.3 Method of test

See 14.1.2 for test procedure.

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	0x81	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Uplink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
UL_TFC0	(TF0, TF0, TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0, TF0, TF0)
UL_TFC2	(TF2, TF1, TF1, TF0, TF0)
UL_TFC3	(TF0, TF0, TF0, TF1, TF0)
UL_TFC4	(TF1, TF0, TF0, TF1, TF0)
UL_TFC5	(TF2, TF1, TF1, TF1, TF0)
UL_TFC6	(TF0, TF0, TF0, TF2, TF0)
UL_TFC7	(TF1, TF0, TF0, TF2, TF0)
UL_TFC8	(TF2, TF1, TF1, TF2, TF0)
UL_TFC9	(TF0, TF0, TF0, TF3, TF0)
UL_TFC10	(TF1, TF0, TF0, TF3, TF0)
UL_TFC11	(TF2, TF1, TF1, TF3, TF0)
UL_TFC12	(TF0, TF0, TF0, TF4, TF0)
UL_TFC13	(TF1, TF0, TF0, TF4, TF0)
UL_TFC14	(TF2, TF1, TF1, TF4, TF0)
UL_TFC15	(TF0, TF0, TF0, TF0, TF1)
UL_TFC16	(TF1, TF0, TF0, TF0, TF1)
UL_TFC17	(TF2, TF1, TF1, TF0, TF1)
UL_TFC18	(TF0, TF0, TF0, TF1, TF1)
UL_TFC19	(TF1, TF0, TF0, TF1, TF1)
UL_TFC20	(TF2, TF1, TF1, TF1, TF1)
UL_TFC21	(TF0, TF0, TF0, TF2, TF1)
UL_TFC22	(TF1, TF0, TF0, TF2, TF1)
UL_TFC23	(TF2, TF1, TF1, TF2, TF1)
UL_TFC24	(TF0, TF0, TF0, TF3, TF1)
UL_TFC25	(TF1, TF0, TF0, TF3, TF1)
UL_TFC26	(TF2, TF1, TF1, TF3, TF1)
UL_TFC27	(TF0, TF0, TF0, TF4, TF1)
UL_TFC28	(TF1, TF0, TF0, TF4, TF1)
UL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	RB7 (RAB subflow #3)	RB8 (32 kbps)	DCCH
TFS	TF0, bits	1x0	0x103	0x60	0x336	0x148
	TF1, bits	1x39	1x103	1x60	1x336	1x148
	TF2, bits	1x81	N/A	N/A	2x336	N/A
	TF3, bits	N/A	N/A	N/A	3x336	N/A
	TF4, bits	N/A	N/A	N/A	4x336	N/A

Downlink TFCS:

TFCI	(RB5, RB6, RB7, RB8, DCCH)
DL_TFC0	(TF0, TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF1, TF0, TF0)
DL_TFC3	(TF0, TF0, TF0, TF1, TF0)
DL_TFC4	(TF1, TF0, TF0, TF1, TF0)
DL_TFC5	(TF2, TF1, TF1, TF1, TF0)
DL_TFC6	(TF0, TF0, TF0, TF2, TF0)
DL_TFC7	(TF1, TF0, TF0, TF2, TF0)
DL_TFC8	(TF2, TF1, TF1, TF2, TF0)
DL_TFC9	(TF0, TF0, TF0, TF3, TF0)
DL_TFC10	(TF1, TF0, TF0, TF3, TF0)
DL_TFC11	(TF2, TF1, TF1, TF3, TF0)
DL_TFC12	(TF0, TF0, TF0, TF4, TF0)
DL_TFC13	(TF1, TF0, TF0, TF4, TF0)
DL_TFC14	(TF2, TF1, TF1, TF4, TF0)
DL_TFC15	(TF0, TF0, TF0, TF0, TF1)
DL_TFC16	(TF1, TF0, TF0, TF0, TF1)
DL_TFC17	(TF2, TF1, TF1, TF0, TF1)
DL_TFC18	(TF0, TF0, TF0, TF1, TF1)
DL_TFC19	(TF1, TF0, TF0, TF1, TF1)
DL_TFC20	(TF2, TF1, TF1, TF1, TF1)
DL_TFC21	(TF0, TF0, TF0, TF2, TF1)
DL_TFC22	(TF1, TF0, TF0, TF2, TF1)
DL_TFC23	(TF2, TF1, TF1, TF2, TF1)
DL_TFC24	(TF0, TF0, TF0, TF3, TF1)
DL_TFC25	(TF1, TF0, TF0, TF3, TF1)
DL_TFC26	(TF2, TF1, TF1, TF3, TF1)
DL_TFC27	(TF0, TF0, TF0, TF4, TF1)
DL_TFC28	(TF1, TF0, TF0, TF4, TF1)
DL_TFC29	(TF2, TF1, TF1, TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC16	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: No data
2	DL_TFC2, DL_TFC17	UL_TFC2, UL_TFC17	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC17	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: No data
3	DL_TFC3, DL_TFC18	UL_TFC3, UL_TFC18	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC15, UL_TFC18	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: No data RB6: No data RB7: No data RB8: 312
4	DL_TFC4, DL_TFC19	UL_TFC4, UL_TFC19	DL_TFC0, DL_TFC15, DL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC15, UL_TFC16, UL_TFC18, UL_TFC19	RB5: 39 RB6: 103 RB7: 60 RB8: 312	RB5: 39 RB6: No data RB7: No data RB8: 312
5	DL_TFC5, DL_TFC20	UL_TFC5, UL_TFC20	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TFC18, UL_TFC20	RB5: 81 RB6: 103 RB7: 60 RB8: 312	RB5: 81 RB6: 103 RB7: 60 RB8: 312
6	DL_TFC6, DL_TFC21	UL_TFC6, UL_TFC21	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC6, UL_TFC15, UL_TFC21	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: No data RB6: No data RB7: No data RB8: 632
7	DL_TFC7, DL_TFC22	UL_TFC7, UL_TFC22	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC4, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC6, UL_TFC7, UL_TFC15, UL_TFC16, UL_TFC21, UL_TFC22	RB5: 39 RB6: 103 RB7: 60 RB8: 632	RB5: 39 RB6: No data RB7: No data RB8: 632

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC6, UL_TFC8, UL_TFC15, UL_TFC17, UL_TFC21, UL_TFC23	RB5: 81 RB6: 103 RB7: 60 RB8: 632	RB5: 81 RB6: 103 RB7: 60 RB8: 632
9	DL_TFC9, DL_TFC24	UL_TFC9, UL_TFC24	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC9, UL_TFC15, UL_TFC24	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 952
10	DL_TFC10 , DL_TFC25	UL_TFC10 , UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC4, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC9, UL_TFC10, UL_TFC15, UL_TFC16, UL_TFC24, UL_TFC25	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: 39 RB6: No data RB7: No data RB8: 952
11	DL_TFC11 , DL_TFC26	UL_TFC11 , UL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC9, UL_TFC11, UL_TFC15, UL_TFC17, UL_TFC24, UL_TFC26	RB5: 81 RB6: 103 RB7: 60 RB8: 952	RB5: 81 RB6: 103 RB7: 60 RB8: 952
12	DL_TFC12 , DL_TFC27	UL_TFC12 , UL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 1272
13	DL_TFC13 , DL_TFC28	UL_TFC13 , UL_TFC28	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC4, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC12, UL_TFC13, UL_TFC15, UL_TFC16, UL_TFC27, UL_TFC28	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: 39 RB6: No data RB7: No data RB8: 1272

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 1)	UL RLC SDU size (bits) (note 2)	Test data size (bits) (note 2)
14	DL_TFC14 , DL_TFC29	UL_TFC14 , UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC5, UL_TFC15	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC5, UL_TFC12, UL_TFC14, UL_TFC15, UL_TFC17, UL_TFC27, UL_TFC29	RB5: 81 RB6: 103 RB7: 60 RB8: 1272	RB5: 81 RB6: 103 RB7: 60 RB8: 1272

NOTE 1: UL_TFC0, UL_TFC1, UL_TFC2, , UL_TFC3 and UL_TFC15 are part of minimum set of TFCIs.
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB8: Test data size has been set to the payload size of the DL TF under test minus 8 bits (size of 7 bit length indicator and expansion bit). The UL RLC SDU size has been set equal to the size of the payload size of the UL TF under test minus 8 bits (the size of 7 bit length indicator and expansion bit).

14.2.38c.4 Test requirements

See 14.1.2 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15a and step 15b the UE transmitted transport format shall be within the set of restricted TFCIs as specified for the actual sub-test.
3. At step 15a and step 15b the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6, RB7 and RB8.
   - for sub-test 2: an RLC SDU on RB5, RB6 and RB7 having the same content as sent by SS; and no data shall be received on RB8.
   - for sub-test 3, 6, 9 and 12: an RLC SDU on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.
   - for sub-test 4, 7, 10 and 13: an RLC SDU on RB5 and RB8 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
   - for sub-test 5, 8, 11 and 14: an RLC SDU on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th Nov, 2004

Tdoc ⌘T1-041915

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1007** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to prose for Package 4 RRC test case 8.1.7.1c
Source:	⌘	Anite
Work item code:	⌘	TEI
Date:	⌘	04/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘

1. The Test Procedure states ìThis procedure is repeated until the RRC message sequence number for **SRB 1** in downlink equals 15î. This condition should be satisfied for **SRB2** and not for SRB1

2. The Specific Message Content for the SECURITY MODE COMMAND message (step 7) specifies that the IE ì**Activation Time for DPCH**î should be included. However, **TS 25.331 clause 8.1.12.1** states,

   ì**if a transparent mode radio bearer for this CN domain exists**:

   2> include the IE "Ciphering activation time for DPCH" in IE "Ciphering mode info", at which time the new ciphering configuration shall be applied and specify a CFN value for this IE that is a multiple of 8 frames (CFN mod 8 = 0); ì

   As the SECURITY MODE COMMAND message at Step 7 is for the PS Domain and no TM RB exists for this domain, the Activation Time IE should be set to ìOMITî.

3. Initial condition mentions that the UE should reach state 6-14 using procedure **P19**.

   However the test purpose states that:

   ìTo verify that the UE correctly modifies the integrity protection and ciphering configuration with a newly generated PS domain keyset for when previously using the CS domain keysetî

   Thus at Step 1 of the expected sequence the last secure CNdomain should be CS domain and hence UE should be brought to PS+CS-

	DCCH+DTCH_DCH (state 6-14) using procedure **P24**.
Summary of change: ⌘	Following changes are made to **34.123-1 section 8.1.7.1c.4**: • Test procedure is modified to replace SRB1 by SRB2 as below: ìThis procedure is repeated until the RRC message sequence number for **SRB 2** in downlink equals 15î • Specific message content for security mode command (step7) is modified to remove the IE ì**Activation Time for DPCH**î. • Initial condition modified to replace P19 by P24 as below: ìUE: has entered PS+CS-DCCH+DTCH_DCH (state 6-14) using procedure **P24** as specified in clause 7.4 of TS 34.108.î
Consequences if not approved: ⌘	Test case prose will not be aligned with 25.331.

Clauses affected: ⌘	8.1.7.1c.4			
Other specs affected: ⌘	**Y**	**N**		⌘
		X	Other core specifications	
	X		Test specifications	
		X	O&M Specifications	
Other comments: ⌘	(Revision of T1-041521). Affects R99, Rel4 and Rel5 UEs			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<< START OF MODIFIED SECTION >>

8.1.7.1c Security mode control in CELL_DCH state (CN Domain switch and new keys at RRC message sequence number wrap around)

8.1.7.1c.1 Definition

8.1.7.1c.2 Conformance requirement

Upon reception of the SECURITY MODE COMMAND message, the UE shall:

Ö

2> set the variable LATEST_CONFIGURED_CN_DOMAIN equal to the IE "CN domain identity";

2> set the IE "Status" in the variable SECURITY_MODIFICATION for the CN domain indicated in the IE "CN domain identity" in the received SECURITY MODE COMMAND to the value "Affected";

Ö

If a new security key set (new ciphering and integrity protection keys) has been received from the upper layers [40] for the CN domain as indicated in the variable LATEST_CONFIGURED_CN_DOMAIN, the UE shall:

1> set the START value for the CN domain indicated in the variable LATEST_CONFIGURED_CN_DOMAIN to zero;

1> if the SECURITY MODE COMMAND message contained the IE "Integrity protection mode info":

2> for integrity protection in the downlink on each signalling radio bearer except RB2:

3> if IE "Integrity protection mode command" has the value "start":

Ö

3> else:

4> for the first message for which the RRC sequence number in a received RRC message for this signalling radio bearer is equal to or greater than the activation time as indicated in IE "Downlink integrity protection activation info" as included in the IE "Integrity protection mode info":

5> start using the new integrity key;

5> for this signalling radio bearer:

6> set the IE "Downlink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the downlink COUNT-I to zero.

2> for integrity protection in the uplink on each signalling radio bearer except RB2:

3> for the first message for which the RRC sequence number in a to be transmitted RRC message for this signalling radio bearer is equal to the activation time as indicated in IE "Uplink integrity protection activation info" included in the transmitted SECURITY MODE COMPLETE message:

4> start using the new integrity key;

4> for this signalling radio bearer:

5> set the IE "Uplink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the uplink COUNT-I to zero.

2> for integrity protection in the downlink on signalling radio bearer RB2:

3> at the received SECURITY MODECOMMAND:

4> start using the new integrity key;

4> set the IE "Downlink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the downlink COUNT-I to zero.

2> for integrity protection in the uplink on signalling radio bearer RB2 :

3> at the transmitted SECURITY MODE COMPLETE:

4> start using the new integrity key;

4> set the IE "Uplink RRC HFN" in the variable INTEGRITY_PROTECTION_INFO of the uplink COUNT-I to zero.

1> if the SECURITY MODE COMMAND message contained the IE "Ciphering mode info":

2> for each signalling radio bearer and for each radio bearer for the CN domain indicated in the variable LATEST_CONFIGURED_CN_DOMAIN:

3> if the IE "Status" in the variable CIPHERING_STATUS has the value "Started" for this CN domain, then for ciphering on radio bearers using RLC-TM:

4> at the CFN as indicated in the IE "Ciphering activation time for DPCH" in the IE "Ciphering mode info":

5> start using the new key in uplink and downlink;

5> set the HFN component of the COUNT-C to zero.

3> if the IE "Status" in the variable CIPHERING_STATUS has the value "Started" for this CN domain, then for ciphering on radio bearers and signalling radio bearers using RLC-AM and RLC-UM:

4> in the downlink, at the RLC sequence number indicated in IE "Radio bearer downlink ciphering activation time info" in the IE "Ciphering mode info":

5> start using the new key;

5> set the HFN component of the downlink COUNT-C to zero.

4> in the uplink, at the RLC sequence number indicated in IE "Radio bearer uplink ciphering activation time info":

5> start using the new key;

5> set the HFN component of the uplink COUNT-C to zero.

1> consider the value of the latest transmitted START value to be zero.

Ö

If the IE "Ciphering mode info" is present and if the IE "Reconfiguration" in the variable CIPHERING_STATUS is set to FALSE, the UE shall:

1> apply the new ciphering configuration in the lower layers for all RBs that belong to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

2> using the ciphering algorithm (UEA [40]) indicated by the IE "Ciphering algorithm" as part of the new ciphering configuration;

2> for each radio bearer that belongs to a CN domain for which the IE "Status" of the variable SECURITY_MODIFICATION is set to "Affected" and all signalling radio bearers:

3> using the value of the IE "RB identity" in the variable ESTABLISHED_RABS minus one as the value of BEARER [40] in the ciphering algorithm.

Ö

If the IE "Integrity protection mode info" is present and if the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO is set to FALSE, the UE shall:

1> set the IE "Reconfiguration" in the variable INTEGRITY_PROTECTION_INFO to TRUE;

1> if IE "Integrity protection mode command" has the value "modify" and the IE "Status" in the variable INTEGRITY_PROTECTION_INFO has the value "Started" and this IE was included in SECURITY MODE COMMAND:

Ö

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each signalling radio bearer n, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info", included in the IE "Integrity protection mode info";

2> set the content of the variable INTEGRITY_PROTECTION_ACTIVATION_INFO according to the following:

Ö

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Uplink integrity protection activation info", included in the variable INTEGRITY_PROTECTION_ACTIVATION_INFO;

2> start applying the new integrity protection configuration in the uplink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration;

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number, for each RBn, except for signalling radio bearer RB2, indicated by the entry for signalling radio bearer n in the "RRC message sequence number list" in the IE "Downlink integrity protection activation info";

2> start applying the new integrity protection configuration in the downlink at the RRC sequence number for signalling radio bearer RB2, as specified for the procedure initiating the integrity protection reconfiguration.

Reference

3GPP TS 25.331 clauses 8.1.12.3, 8.6.3.4, 8.6.3.5.

8.1.7.1c.3 Test purpose

To verify that the UE correctly modifies the integrity protection and ciphering configuration with a newly generated PS domain keyset for when previously using the CS domain keyset.

To verify that the UE can handle change of integrity protection key when the RRC message sequence number wraps around when the SECURITY MODE COMMAND is received.

8.1.7.1c.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: has entered PS+CS-DCCH+DTCH_DCH (state 6-14) using procedure P~~19~~24 as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state.

The SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the

uplink DCCH using RLC-AM. SS then sends UE CAPABILITY INFORMATION CONFIRM message to the UE using RLC-AM. This procedure is repeated until the RRC message sequence number for SRB ~~1~~ 2 in downlink equals 15.

The SS initiates an Authentication procedure, which will result in the generation of a new security keyset (CK/IK). The SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and "Integrity check info" IE.

Then the UE shall check the integrity check info and shall start to configure ciphering in downlink according to the first valid SECURITY MODE COMMAND message. The UE shall transmit a SECURITY MODE COMPLETE message which contains the correct uplink activation times and also "Integrity check info" IE using the new integrity protection configuration.

The SS records the uplink ciphering activation time for RB 2.

Next, the SS transmits UE CAPABILITY ENQUIRY message repeatedly on the downlink DCCH using RLC-AM mode. The UE shall respond to each downlink message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to the UE. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 has elapsed. SS checks all uplink UE CAPABILITY INFORMATION messages are integrity-protected by UIA algorithm, and that the messages contain the correct values for "Integrity check info" IE. This can be verified in the SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

The SS transmits UE CAPABILITY ENQUIRY message on the downlink DCCH using RLC-UM mode on SRB1. The UE shall respond to this message with a UE CAPABILITY INFORMATION message on the uplink DCCH using RLC-AM. SS then send UE CAPABILITY INFORMATION CONFIRM message to the UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in CELL_DCH state.
2	←		UE CAPABILITY ENQUIRY	The SS repeats step 2, 3 and 4 until its internal downlink RRC message sequence number for RB 2 has the value 15.
3	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
4	←		UE CAPABILITY INFORMATION CONFIRM	
5	←		AUTHENTICATION and CIPHERING REQUEST	GMM message which will result in the generation of a new security keyset
6	→		AUTHENTICATION AND CIPHERING RESPONSE	GMM
7	←		SECURITY MODE COMMAND	See specific message contents.
8	→		SECURITY MODE COMPLETE	The SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
9	←		UE CAPABILITY ENQUIRY	The SS repeats step 9, 10 and 11 until its internal uplink and downlink RLC SN have both surpassed the uplink and downlink ciphering activation time specified for RB2. This message is sent on the downlink DCCH using RLC-AM.
10	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
11	←		UE CAPABILITY INFORMATION CONFIRM	
12	←		UE CAPABILITY ENQUIRY	The SS sends this message with the downlink RRC message sequence number for SRB 1 with the value 0.
13	→		UE CAPABILITY INFORMATION	The UE shall send this message on the uplink DCCH using RLC-AM. SS verifies that the last UE CAPABILITY INFORMATION message is both integrity-protected and ciphered correctly.
14	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 7)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	
Ciphering mode command	Start/restart
Ciphering algorithm	UEA1
~~Activation time for DPCH~~	~~(256+CFN-(CFN MOD 8 + 8))MOD 256~~
Radio bearer downlink ciphering activation time info	
RB Identity	1
RLC sequence number	Current RLC SN
RB Identity	2
RLC sequence number	Current RLC SN + 2
RB Identity	3
RLC sequence number	Current RLC SN
RB Identity	4
RLC sequence number	Current RLC SN
RB Identity	20
RLC sequence number	Current RLC SN
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	Current RRC SN for SRB0 Current RRC SN for SRB1 0 Current RRC SN for SRB3 Current RRC SN for SRB4
Integrity protection algorithm	UIA1
CN domain identity	PS Domain

NOTE: "Current RLC SN" is defined as the value of VT(S) in the SS at the time when the SECURITY MODE COMMAND is submitted to RLC for transmission, that is, the RLC send sequence number of the next transmitted RLC PDU on the particular radio bearer. "Current RRC SN" is defined as the RRC message sequence number of the next transmitted RRC message on the particular radio bearer.

SECURITY MODE COMPLETE (Step 8)

Use the same message content as found in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS.
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if the RRC SN for RB 0 to RB 4 are present
-RRC message sequence number	Check to see if the RRC SN for RB 0 is present
-RRC message sequence number	Check to see if the RRC SN for RB 1 is present
-RRC message sequence number	Check to see if the RRC SN for RB 2 is present
-RRC message sequence number	Check to see if the RRC SN for RB 3 is present
-RRC message sequence number	Check to see if the RRC SN for RB 4 is present
Radio bearer uplink ciphering activation time info	
- Radio bearer activation time	
- RB Identity	1
- RLC sequence number	Check to see if the RLC SN for RB1 is present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'
- RB Identity	3
- RLC sequence number	Check to see if the RLC SN for RB3 is present
- RB Identity	4
- RLC sequence number	Check to see if the RLC SN for RB4 is present
- RB Identity	20
- RLC sequence number	Check to see if the RLC SN for RB20 is present

8.1.7.1c.5 Test requirement

After step 7 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated "integrity check info" IE is correct.

After step 8 SS verifies that all uplink signalling messages on RB2 are integrity protected with UIA1 algorithm.

After uplink ciphering activation time has lapsed, SS verifies that the UE CAPABILITY INFORMATION message received is integrity protected with UIA algorithm and ciphered with the new ciphering configuration and algorithm indicated in the SECURITY MODE COMMAND (Step 7) message.

After downlink ciphering activation time has lapsed, SS shall apply ciphering to all downlink messages using the new configuration. At least one more cycle between step 9 and step 11 shall be repeated correctly after activation time on both directions has lapsed and the messages on both direction shall be ciphered and integrity protected..

<< END OF MODIFIED SECTION >>

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘ *T1-041916*

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1008** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to P1 RRC test case 8.4.1.1 (Revision of T1-041553)
Source:	⌘	Sasken Communication Technologies Limited
Work item code:	⌘	TEI
Date:	⌘	05/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Section 8.6.7.7 of 25.331 states that if the IE "Read SFN indicator" included in the IE "Cell info" of the measured cell is set to FALSE the UE may omit the information group "COUNT-C-SFN frame difference" in the IE "Cell synchronisation informationî In Test case 8.4.1.1 the specific message contents for MEASUREMENT CONTROL(step 10a)specifies ìRead SFN indicatorî for intra-frequency cell id 2 as FALSE but in the MEASUREMENT REPORT message (step 10b) the presence of ìCOUNT-C-SFN frame differenceî in the IE ìCell synchronisation informationî for cell id 2 is explicitly checked.
Summary of change:	⌘	At step 10b, The value/Remark section for the IE ìCell synchronisation informationî is modified as ìCheck to see if this IE is present and that the COUNT-C-SFN frame difference may or may not be included in it.
Consequences if not approved:	⌘	A conformant UE may fail

Clauses affected:	⌘	8.4.1.1.4

Other specs affected:	⌘	Y	N		⌘
			X	Other core specifications	
		X		Test specifications	
			X	O&M Specifications	

Other comments:	⌘	This CR affects the TTCN implementation.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4.1.1 Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_DCH state (FDD)

8.4.1.1.1 Definition

8.4.1.1.2 Conformance requirement

Upon transition from idle mode to CELL_DCH state:

1> if intra-frequency measurements applicable to CELL_DCH state are stored in the variable MEASUREMENT_IDENTITY:

2> if the cell in which the UE transited from idle mode is included in the active set for the CELL_DCH state, the UE shall:

3> begin measurement reporting.

2> otherwise:

3> the UE should not begin the measurement reporting. If the UE does not begin the measurement reporting, the measurement shall be restarted when a MEASUREMENT CONTROL message is received with the corresponding measurement identity.

In CELL_DCH state, the UE shall:

1> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing measurements that are being performed in the UE.

Ö

The reporting criteria are fulfilled if either:

- a periodic MEASUREMENT REPORT message shall be sent according to the IE "Periodical Reporting Criteria"; or

- an event in stored IE "Measurement reporting criteria" was triggered. Events and triggering of reports for different measurement types are described in detail in clause 14.

For the measurement, which triggered the MEASUREMENT REPORT message, the UE shall:

1> set the IE "measurement identity" to the measurement identity, which is associated with that measurement in variable MEASUREMENT_IDENTITY;

1> set the IE "measured results" to include measurements according to the IE "reporting quantity" of that measurement stored in variable MEASUREMENT_IDENTITY; and

2> if all the reporting quantities are set to "false":

3> not set the IE "measured results".

1> set the IE "Measured results" in the IE "Additional measured results" according to the IE "reporting quantity" for all measurements associated with the measurement identities included in the "Additional measurements list" stored in variable MEASUREMENT_IDENTITY of the measurement that triggered the measurement report; and

2> if one or more additional measured results are to be included:

3> include only the available additional measured results, and sort them in ascending order according to their IE "measurement identity" in the MEASUREMENT REPORT message.

1> if the MEASUREMENT REPORT message was triggered by an event (i.e. not a periodical report):

Ö

The UE shall:

1> transmit the MEASUREMENT REPORT message on the uplink DCCH using either AM or UM RLC according to the stored IE "measurement reporting mode" associated with the measurement identity that triggered the report.

When the MEASUREMENT REPORT message has been submitted to lower layers for transmission:

1> the procedure ends.

Ö

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in TS 25.331 subclause 8.6 unless otherwise specified below.

The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

Ö .

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

Ö

2> for measurement type "UE positioning measurement":

Ö

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

1> if the IE "Measurement command" has the value "modify":

2> for all IEs present in the MEASUREMENT CONTROL message:

3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

4> if the measurement type is quality, UE internal, intra-frequency, inter-frequency or inter-RAT:

5> if the UE is in CELL_FACH state:

6> the UE behaviour is not specified.

4> if measurement type is set to "intra-frequency measurement", for any of the optional IEs "Intra-frequency measurement objects list", "Intra-frequency measurement quantity", "Intra-frequency reporting quantity", "Measurement Validity", "report criteria" and "parameters required for each event" (given "report criteria" is set to "intra-frequency measurement reporting criteria") that are present in the MEASUREMENT CONTROL message:

2> for any other measurement type:

3> resume the measurements according to the new stored measurement control information.

1> if the IE "measurement command" has the value "release":

2> terminate the measurement associated with the identity given in the IE "measurement identity";

2> clear all stored measurement control information related associated to this measurement identity in variable MEASUREMENT_IDENTITY.

If the IE "Reporting Cell Status" is not received for intra-frequency, inter-frequency measurement, or inter-RAT measurement, the UE shall:

1> for intra-frequency measurement, inter-frequency measurement and inter-RAT measurement:

2> exclude the IE "Measured Results" in MEASUREMENT REPORT.

NOTE: The IE "Reporting Cell Status" within "Event Criteria List" defines whether "Cell Measured Results" is present for event-based reporting.

The IE "Reporting Cell Status" is not included in System Information Block 11/12 for periodic intra-frequency measurements. In this case the UE shall assume the default values "Report cells within active set and/or monitored set on used frequency " and "6".Reference

3GPP TS 25.331 clause 8.4.1.8.1, 8.4.1.3, 8.4.2.2, 8.6.7.9.

8.4.1.1.3 Test Purpose

1. To confirm that the UE continues to monitor intra-frequency measurement quantity of the cells listed in System Information Block type 11 or 12 messages, after it has entered CELL_DCH state from idle mode. When the intra-frequency measurement reporting criteria specified in System Information Block type 11 or 12 messages have been met, it shall report the measurements using MEASUREMENT REPORT message(s).

2. To confirm that the UE terminates monitoring and reporting activities for the cells listed in "intra-frequency cell info list" IE in System Information Block type 11 or 12 messages, after it has received a MEASUREMENT CONTROL message that specifies the measurement type to be "intra-frequency measurement" with the same measurement identity as in System Information Block Type 11 or 12 messages. To confirm that the UE reconfigures the monitoring and reporting activities based on the last MEASUREMENT CONTROL message received.

8.4.1.1.4 Method of test

Initial Condition

System Simulator: 3 cells ñ Cell 1, Cell 2 and Cell 3 are active.

UE: "Registered idle mode on CS" (state 2) or "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS" (state 7).

Test Procedure

Table 8.4.1.1-1 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution. Column marked "T0" denotes the initial conditions, while columns marked "T1" and "T2" are to be applied subsequently. The exact instants on which these values shall be applied are described in the texts in this clause.

Table 8.4.1.1-1

Parameter	Unit	Cell 1			Cell 2			Cell 3		
		T0	T1	T2	T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Ch. 1			Ch. 1			Ch.1		
CPICH Ec	dBm/3.84 MHz	-60	-60	-60	-70	-60	-80	-80	-60	-60

The UE is initially in idle mode and has selected cell 1 for camping. The System Information Block type 11 messages are modified with respect to the default settings. The key measurement parameters in the modified System Information Block message are as follow: report criteria = "periodic reporting criteria", reporting interval = "64 seconds".

SS prompts the operator to make an outgoing call of a supported traffic class. SS and UE shall execute procedure P3 (for CS service) or P5 (for PS service). Next SS and UE shall execute procedure P7 (for CS service) or P9 (for PS service). Then SS and UE shall execute procedure P11 (for CS service) or P13 (for PS service). The UE shall send a MEASUREMENT REPORT message after reaching CELL_DCH state, reporting cell 2's CPICH RSCP value. After 64 seconds has passed since SS receives the first MEASUREMENT REPORT message, the UE shall transmit a second MEASUREMENT REPORT message.

Note: In P11 or P13 in step 4, in RADIO BEARER SETUP message, IE "Default DPCH Offset Value" and IE "DPCH frame offset" are set to "0".

SS sends a MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS configures an intra-frequency measurement based on the measurement quantity CPICH RSCP. Parameters used in this message are: measurement identity = "1", report criteria = "event-trigger", event identity = "1e", reporting threshold = "-70 dBm". SS checks to see that no MEASUREMENT REPORT messages are sent within the next 64 seconds (which is due to periodic reporting). SS reconfigures the downlink transmission power settings according to values in column "T1" in table 8.4.1.1-1. The UE shall transmit a MEASUREMENT REPORT message when it detects that the CPICH RSCP of cell 3 has risen above the threshold value specified in the previous MEASUREMENT CONTROL message.

SS sends then a new MEASUREMENT CONTROL message to add cell 2 to the list of the cells the UE shall measure. Since the RSCP for cell 2 is above the threshold for event 1e to be triggered, a MEASUREMENT REPORT triggered by cell 2 shall be sent by the UE.

SS reconfigures the downlink transmission power settings according to values in column "T2" in table 8.4.1.1-1. SS sends a new MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS configures an intra-frequency measurement based on the measurement quantity CPICH RSCP. Parameters used in this message are: measurement identity = "1", report criteria = "event-trigger", event identity = "1a", Reporting range 8db. SS reconfigures the downlink transmission power settings according to values in column "T1" in table 8.4.1.1-1. The UE shall transmit a MEASUREMENT REPORT message when it detects that the condition for event 1a is fulfilled. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 11	The UE is in idle mode and camped onto cell 1. The System Information Block type 11 messages to be transmitted are different from the default settings (see specific message contents)
2	↔		SS executes procedure P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2) specified in TS 34.108.	
3	↔		SS executes procedure P7 (clause 7.4.2.3.2) or P9 (clause 7.4.2.4.2) specified in TS 34.108.	
4	↔		SS executes procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108.	IE "Default DPCH Offset Value" and IE "DPCH frame offset " in RADIO BEARER SETUP message is set to "0".
5	SS			SS shall wait for a MEASUREMENT REPORT message.
6	→		MEASUREMENT REPORT	After receiving this message, SS shall expect to receive the next MEASUREMENT REPORT message after 64 seconds.
6a	→		MEASUREMENT REPORT	SS shall receive consecutive MEASUREMENT REPORT messages at 64 seconds interval.

Step	Direction		Message	Comment
	UE	SS		
7	←		MEASUREMENT CONTROL	A measurement with "measurement identity" IE set to "1" is assigned, with the IE "CHOICE reporting criteria" set to "intra-frequency measurement reporting criteria". See specific message content for the rest of the message.
8				SS waits for 64 seconds and verifies that no further MEASUREMENT REPORT messages are detected on the uplink DCCH.
9				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.1-1.
10	→		MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message triggered by cell 3 and containing report the measured CPICH RSCP value of cell 3.
10a	←		MEASUREMENT CONTROL	A MEASUREMENT CONTROL is sent to the UE to modify the list of the cells the UE shall monitor.
10b	→		MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message triggered by cell 2.
11				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.1-2.
12	←		MEASUREMENT CONTROL	A measurement with "measurement identity" IE set to "1" is assigned, with the IE "CHOICE reporting criteria" set to "intra-frequency measurement reporting criteria". See specific message content for the rest of the message.
13				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.1-3 and waits 5 seconds.
14	→		MEASUREMENT REPORT	SS verifies that UE transmits a MEASUREMENT REPORT message to report occurrence of event 1a.
15	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

All messages indicated below shall use the same content as described in default message content, with the following exceptions:

System Information Block type 11 (Step 1)

Use the same System Information Block Type 11 message as found in clause 6.1.0b of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measurement control system information	
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not Present Absence of this IE is equivalent to default value 1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Not present (This IE shall be ignored by the UE for SIB11)
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	TRUE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection	Not Present (The IE shall be absent as this is the serving cell)
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	Not present Absence of this IE is equivalent to default value 0dB
- Reference time difference to cell	1024
- Read SFN Indicator	TRUE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1.4 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present For neigbouring cell, if HCS is not used and all the parameters in cell selection and re-selection info are Default value, this IE is absent.
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement Reporting Mode	
- Measurement Report Transfer Mode	Acknowledged mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	Periodical reporting
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64 seconds

MEASUREMENT REPORT (Step 6 and 6a)

Note 1: The Cell measured results for Cell 1 may or may not be present.

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	See Note 1
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1 (if present)
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is absent
- Pathloss	Check to see if this IE is absent
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	"Checked to see if set to within an acceptable range"
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event Results	Check to see if this IE is absent

MEASUREMENT CONTROL (Step 7)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency measurement objects list	
- CHOICE intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency cells	2 new intra-frequency cells
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	256 chips
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE Mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CHOICE mode	FDD
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not Present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1e
- Triggering condition 1	Not present
- Triggering condition 2	Monitored set cells
- Reporting range constant	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present
- Hysteresis	1 dB
- Threshold used frequency	-70 dBm

- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	0 ms
- Amount of reporting	Infinity
- Reporting interval	Not Present
- Reporting cell status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 10)

Note 1: Cell measured results for cells 1 and 3 may appear in either order (i.e. cell 1 then cell 3 or cell 3 then cell 1)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	
- Cell measured results	See Note 1
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is present
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	See Note 1
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference is included in it.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1e"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3

MEASUREMENT CONTROL (Step 10a)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Modify
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency info list	1 new intra-frequency cell
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	0
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell for measurement	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- Reporting cell status	Not Present
- Measurement validity	Not Present
- CHOICE report criteria	Not Present

MEASUREMENT REPORT (Step 10b)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	
- CHOICE measurement	Check to see if set to "Intra-frequency measured results list"
- Intra-frequency measurement results	Check to see if measurement results for 3 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	(for cell 1)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if it is absent.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 1
- CPICH Ec/No	Check to see if this IE is present
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	(for cell 2)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference ~~is~~ may or may not be included in it.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
- Cell measured results	(for cell 3)
- Cell Identity	Check to see if it is absent
- Cell synchronisation information	Check to see if this IE is present and that the COUNT-C-SFN frame difference is included in it.
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if it's the same code for cell 3
- CPICH Ec/No	Check to see if this IE is absent
- CPICH RSCP	Check to see if this IE is present
- Pathloss	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	Check to see if this IE is set to "Intra-frequency measurement event results"
- Intra-frequency event identity	Check to see if this IE is set to "1e"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2

MEASUREMENT CONTROL (Step 12)

Information Element	Value/remark
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove all intra-frequency cells
- New intra-frequency cells	2 new intra-frequency cells
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not Present
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	0 chips
- Read SFN Indicator	FALSE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected cells	Not present
- Reporting cell status	Not Present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1a
- Triggering condition 1	Not present
- Triggering condition 2	Monitored set cells
- Reporting range constant	8 dB
- Cells forbidden to affect reporting range	Not Present
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	1
- Replacement activation threshold	Not Present
- Time to trigger	5000 msec

- Amount of reporting	Infinity
- Reporting interval	16 s
- Reporting cell status	Not Present
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 14)

Information Element	Value/remark
Measurement identity	Check to see if set to 1
Measured Results	Check to see if this IE is absent
Measured Results on RACH	Check to see if this IE is absent
Additional Measured Results	Check to see if this IE is absent
Event Results	
- CHOICE event result	
- Intra-frequency event identity	Check to see if this IE is set to "1a"
- Cell measured event results	
- CHOICE mode	Check to see if this IE is set to "FDD"
- Primary CPICH info	
- Primary Scrambling Code	Check to see if it's the same code for cell 2

8.4.1.1.5 Test Requirement

After step 5 the UE shall start to transmit 2 MEASUREMENT REPORT messages at 64 seconds interval. The measurement quantity "CPICH RSCP" of cell 2 shall be reported in these messages.

After step 7 the UE shall not transmit any MEASUREMENT REPORT messages within 64 seconds after SS has transmitted the MEASUREMENT CONTROL message in step 7.

After step 9 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH, to report that the CPICH RSCP value for cell 3 has risen above the threshold stated in the MEASUREMENT CONTROL message transmitted by the SS in step 7. This MEASUREMENT REPORT message shall also contain IE "Event results", indicating the triggering of event '1e' by cell 3. It shall also contain the measured CPICH RSCP value and cell synchronisation information for cell 3, and the measured CPICH Ec/No and RSCP values for cell 1.

After step 10a, the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report that the CPICH RSCP value for cell 2 has risen above the threshold stated in the MEASUREMENT CONTROL message transmitted by the SS in step 10a. The MEASUREMENT REPORT message shall contain the measured CPICH RSCP value and cell synchronisation information for cell 2 and cell 3, as well as the measured CPICH Ec/No and RSCP for cell 1. The IE "Event results" in this message shall indicate that cell 2 has triggered the event.

After step 13, the UE shall transmit a MEASUREMENT REPORT message containing IE "Event results", indicating the triggering of event '1a' by cell 2. The MEASUREMENT REPORT message shall not contain any measured results.

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st-5th November 2004

Tdoc ⌘T1-041917

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1009** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to prose for Package 3 MM test case 9.4.7 (revision of T1-041530)
Source:	⌘	Anite, Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	03/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	In the TTCN implementation at Step 2, after power on when UE initiates ATTACH REQUEST, an ATTACH REJECT is sent. Therefore no subsequent Routing Request procedures will occur.
Summary of change:	⌘	Remove the expected routing area update procedures. **Changes to T1-041530** The addition of the sentence ìThe subsequent GMM attach should be rejected if received in the PS mode.î in the expected sequence, step 2, was removed as this is already stated as a general condition for all MM test cases at the beginning of section 9.
Consequences if not approved:	⌘	Inconsistency between prose and TTCN implementation.

Clauses affected:	⌘	9.4.7.4

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
	X		Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Affects R99, Rel-4 and Rel-5. This CR aligns the prose to the TTCN.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

9.4.7.4 Method of test

Initial conditions:

- System Simulator:
  - two cells: A and B, with different PLMN Codes (PLMN 1 and PLMN 2 respectively).

  NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.
- User Equipment:
  - the UE is switched off. The HPLMN is PLMN 3 and no other information about PLMN priorities or forbidden PLMNs is stored in the USIM. The equivalent PLMN list in the mobile station is empty.
  - the UE is "Idle updated" on cell B.

Related ICS/IXIT statement(s)

Switch off on button Yes/No.

Test procedure

When the UE is initially switched on it will perform a normal location updating in Cell A, which is the only suitable cell available. The LOCATION UPDATING ACCEPT message sent by the SS on reception of the LOCATION UPDATING REQUEST message shall include PLMN 2 in the equivalent PLMN list. When Cell B is made available and its RF signal level is higher than that of Cell A the UE will perform a normal location updating in this cell. The LOCATION UPDATING ACCEPT message sent by the SS shall include PLMN 1 in the equivalent PLMN list. When Cell B is made unavailable the UE shall perform a normal location updating again in Cell A, but in this ocassion the LOCATION UPDATING ACCEPT message shall contain an empty equivalent PLMN list. When Cell B is made available again and its RF signal level is higher than that of Cell A the UE shall not perform a normal location updating in this cell since it is not in the ePLMN list.

Expected Sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell A
1		SS		Set the cell type of Cell A to the "Suitable neighbour cell". Set the cell type of Cell B to the "non-suitable cell". (see note)
2	UE			The UE is switched on by either using the Power Switch or by applying power. ~~The subsequent GMM attach should be rejected if received in the PS mode.~~ ~~If PS mode: a routing area updating procedure should be performed.~~
3		SS	RRC CONNECTION REQUEST	The IE "Establishment cause" in the received RRC CONNECTION REQUEST message is not checked.
4			Void	
5			Void	
6	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
6a		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	Equivalent PLMNs: PLMN 2
8		SS		The SS releases the RRC connection.
9			Void	
				The following messages shall be sent and received on Cell B.
10		SS		Set the cell type of Cell B to the "Serving cell". (see note) ~~If PS mode: a routing area updating procedure should be performed.~~
11		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
12			Void	
13			Void	
14	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
14a		SS		The SS starts integrity protection.
15	←		LOCATION UPDATING ACCEPT	Equivalent PLMNs : PLMN 1
16		SS		The SS releases the RRC connection.
17			Void	
				The following messages shall be sent and received on Cell A.
18		SS		Set the cell type of Cell B to the "non-suitable cell". (see note) ~~If PS mode: a routing area updating procedure should be performed.~~
19		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20			Void	
21			Void	
22	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
22a		SS		The SS starts integrity protection.
23	←		LOCATION UPDATING ACCEPT	Equivalent PLMNs : empty
24		SS		The SS releases the RRC connection.
25			Void	
26		SS		Set the cell type of Cell B to the "Serving cell". (see note)
27		SS		The SS shall wait for 7 minutes during which no messages should be received.

NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

<END OF MODIFIED SECTION>

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041921

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1010** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

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Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	More alignment of IE Names used in Clause 12 to the core specification
Source:	⌘	Anritsu Ltd.
Work item code:	⌘	TEI
Date:	⌘	02/11/2004
Category:	⌘	**D**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Some of the information element names used in the test specification do not match to the core specification TS 24.008.
Summary of change:	⌘	1. ATTACH REQUEST and ROUTING AREA UPDATE REQUEST:- a. changed from ìRouting Area Identityî to ìOld Routing Area Identityî. b. Added the ìOld P-TMSI signature=î to specify the meaning of the P-TMSI signature value. 2. ATTACH ACCEPT, ROUTING AREA UPDATE ACCEPT and P-TMSI REALLOCATION COMMAND:- a. changed from ìMobile Idî to ìAllocated P-TMSIî. b. Added ìP-TMSI Signature =î to specify the meaning of the P-TMSI signature value c. Renamed ìMobile Identityî to ìMS Identityî
Consequences if not approved:	⌘	Mismatch between the test specification and the core specification.

Clauses affected:	⌘	Clause 12.

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Affects R99, Rel-4 and Rel-5. This CR covers all changes in T1-041509, T1-041565, T1-041566, T1-041598, T1-

	041638, T1-041645, T1-041646, T1-041670, T1-041671 plus all GMM test cases. No impact to TTCN

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

12 Elementary procedure for Packet Switched Mobility Management

12.1 Applicability, default conditions and default messages

All test cases for PS mobility management apply for all PS mobiles unless otherwise stated in a specific test. Within each test case, the ICS statement indicates whether the test shall be performed for mobiles that can only operate in mode - class A, only in mode - class C , or in both mode - class A and C. For some procedures, the mobile class is of no importance.

Note that only the layer 3 messages are described in the document. The mapping of the layer 3 messages to lower layers and the use of logical channels is not described in the present document.

The terms 'PS/CS mode of operation' and 'PS mode of operation' are not used in the present document with some exceptions. Instead the terms 'UE operation mode A' and 'UE operation mode C' are used.

If UE supports mode A and C; the operation mode change from C to A during the test and the resulting signalling caused by the mode change, are out of test scope and up to implementation.

The default conditions and default message contents not specified in this clause must be set as in "PS default conditions"

Below is a list of the RAI values and the corresponding RAC, LAC and MCC used in the test cases:

RAI-1: MCC1/MNC1/LAC1/RAC1 (Used if only one cell)

RAI-2: MCC2/MNC1/LAC1/RAC1

RAI-3: MCC1/MNC1/LAC2/RAC1

RAI-4: MCC1/MNC1/LAC1/RAC2

RAI-5: MCC1/MNC1/LAC1/RAC3

RAI-6: MCC2/MNC1/LAC2/RAC1

RAI-7: MCC2/MNC1/LAC1/RAC2

RAI-8: MCC1/MNC2/LAC1/RAC1

RAI-9: MCC1/MNC2/LAC2/RAC1

RAI10: MCC1/MNC2/LAC1/RAC2

RAI-11: MCC1/MNC3/LAC1/RAC1

RAI-12: MCC1/MNC1/LAC2/RAC2

If the User Equipment initial condition specifies that the mobile has a valid IMSI but the initial condition does not mention P-TMSI, than that shall be interpreted as that the mobile has no valid P-TMSI.

The tests are based on 3GPP TS 24.008.

12.2 PS attach procedure

This procedure is used to indicate for the network that the IMSI is available for traffic by establishment of a GMM context.

12.2.1 Normal PS attach

The normal PS attach procedure is a GMM procedure used by PS UEs of UE operation mode A or C to IMSI attach for PS services only.

12.2.1.1 PS attach / accepted

12.2.1.1.1 Definition

12.2.1.1.2 Conformance requirement

1) If the network accepts the PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.

2) If the network accepts the PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

3) If the network accepts the PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.3.1

12.2.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is allocated;

2) P-TMSI / P-TMSI signature is reallocated;

3) Old P-TMSI / P-TMSI signature is not changed.

12.2.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI.

2) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS reallocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.

3) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the old P-TMSI.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to the PS services only (see ICS). If this is not supported by the UE, goto step 26.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services. Paging cause: Terminating interactive call
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
7	->		SERVICE REQUEST	Service type = "paging response"
7a	SS			The SS starts integrity protection and releases the RRC connection.
8	UE			The UE is switched off or power is removed (see ICS).
8a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
9a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
10	UE			The UE is powered up or switched on and initiates an attach (see ICS).
10a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-1
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
14			Void	
14b			Void	
14c	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
14d	SS			SS verifies that the UE transmits an RRC CONNECTION REQUEST message. SS will reject this request. The IE "Establishment cause" is not checked.
15	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
16	UE			No response from the UE to the request. This is checked for 10 seconds.
17	UE			The UE is switched off or power is removed (see ICS).
17a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
18	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
18a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE			The UE is powered up or switched on and initiates an attach (see ICS).
19a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c	SS			The SS starts integrity protection.
21	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
22	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause: Terminating interactive call
22a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
22b			Void	
22c			Void	
23	->		SERVICE REQUEST	Service type = "paging response"
23aa	SS			The SS starts integrity protection and releases the RRC connection.
23a			Void	
23b			Void	
24	UE			The UE is switched off or power is removed (see ICS).
24a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
25	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Step	Direction		Message	Comments
	UE	SS		
25a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
26	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25a.

Specific message contents

None.

12.2.1.1.5 Test requirements

At step 2a, 10a and 19a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a and 22a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating Interactive Call".

At step 8a, 17a and 24a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, 11 and 20, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Mobile identity in the ATTACH REQUEST message and on the Mobile identity in the ATTACH ACCEPT message.

Case 1) The Mobile identity in the ATTACH REQUEST message is the IMSI and the Mobile identity in the ATTACH ACCEPT message is the P-TMSI.

At step5, UE shall:

- acknowledge the P-TMSI by sending the ATTACH COMPLETE message.

Case 2) The Mobile identity in the ATTACH REQUEST message is the P-TMSI and the Mobile identity in the ATTACH ACCEPT message is the new P-TMSI.

At step13, UE shall:

- acknowledge the new P-TMSI by sending the ATTACH COMPLETE message.

At step23, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.1.2 PS attach / rejected / IMSI invalid / illegal UE

12.2.1.2.1 Definition

12.2.1.2.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS, the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

3) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS, the User Equipment shall delete the LAI.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'illegal MS.

12.2.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in

MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).

All three cells are operating in network operation mode II (in case of UE operation mode A).

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal UE'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
				The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.
2	SS			The SS is set in network operation mode II.
				Set the cell type of cell A to the "Serving cell".
				Set the cell type of cell B to the "Non-Suitable cell".
				Set the cell type of cell C to the "Non-Suitable cell".
				(see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4		->	ATTACH REQUEST	Attach type = 'PS attach'
				Mobile identity = P-TMSI-1
				Old Routing area identity = RAI-1
5		<-	ATTACH REJECT	GMM cause = 'Illegal MS'.
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Non-Suitable cell".
				Set the cell type of cell B to the "Serving cell".
				(see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
9	UE			The UE initiates an attach by MMI or by AT command.
10	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
11	SS			Set the cell type of cell B to the "Non-Suitable cell".
				Set the cell type of cell C to the "Serving cell".
				(see note)
12	UE			Cell C is preferred by the UE.
13	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
14	UE			The UE initiates an attach by MMI or by AT command.
15	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
16	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
17	UE			The UE is powered up or switched on.
18	UE		Registration on CS	See TS 34.108
				This is applied only for UE in UE operation mode A.
				Parameter mobile identity is IMSI.
19	UE			The UE initiates an attach (see ICS).
20		->	ATTACH REQUEST	Attach type = 'PS attach'
				Mobile identity = IMSI
20a		<-	AUTHENTICATION AND CIPHERING REQUEST	
20b		->	AUTHENTICATION AND CIPHERING RESPONSE	
20c	SS			The SS starts integrity protection.

21	<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
22	->	ATTACH COMPLETE	
23	UE		The UE is switched off or power is removed (see ICS).
24	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
25	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.2.1.2.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, 10, 13 and 15, UE shall:

- not send the ATTACH REQUEST message to SS, even if there is an instruction of attach request from MMI or from AT command.

At step20, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

12.2.1.3 PS attach / rejected / IMSI invalid / PS services not allowed

12.2.1.3.1 Definition

12.2.1.3.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PS services not allowed' (no valid PS-subscription for the IMSI).

12.2.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 17.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5		<-	ATTACH REJECT	GMM cause = 'PS services not allowed'
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
7a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
8	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
9	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
10	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
11a		<-	AUTHENTICATION AND CIPHERING REQUEST	
11b		->	AUTHENTICATION AND CIPHERING RESPONSE	
11c		SS		The SS starts integrity protection.
12		<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
13		->	ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
15a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

16			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
17	UE		The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 15.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.2.1.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step8, UE shall:

- not perform a PS attach procedure.

At step11, after the UE is switched on or a USIM is replaced, UE shall:

- perform the PS attach procedure.

12.2.1.4 PS attach / rejected / PLMN not allowed

12.2.1.4.1 Definition

12.2.1.4.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:

   1.1 not perform PS attach when switched on in the same routing area or location area (except for the HPLMN).

   1.2 not perform PS attach when in the same PLMN and when that PLMN is not selected manually.

   1.3 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.4 store the PLMN in the 'forbidden PLMN' list.

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall perform PS attach when a new PLMN is entered.

3) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' and if after that the PLMN from which this rejection was received, is manually selected, the User Equipment shall perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.4.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PLMN not allowed'.

12.2.1.4.4 Method of test

12.2.1.4.4.1 Test procedure 1

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell B in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell C in MCC1/MNC2/LAC2/RAC1 (RAI-9) and cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All four cells are operating in network operation mode II (in case of UE operation mode A). The PLMN of the four cells should NOT be that of the UE Home PLMN.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-8. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same routing area or location area and performs PS attach only when a new PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-8
5		<-	ATTACH REJECT	GMM cause = 'PLMN not allowed'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell B.
7	UE			The UE is switched off.
8		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
9	UE			The UE is powered up or switched on.
10	UE			Cell B is preferred by the UE.
11	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
12		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
13	UE			Cell C is preferred by the UE.
14	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell D.
15		SS		Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
16	UE			Cell D is preferred by the UE.
17	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
18	UE			The UE initiates an attach automatically, by MMI or by AT command.
19		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
19a		<-	AUTHENTICATION AND CIPHERING REQUEST	
19b		->	AUTHENTICATION AND CIPHERING RESPONSE	
19c		SS		The SS starts integrity protection.

20	<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
21	->	ATTACH COMPLETE	
22	UE		The UE is switched off or power is removed (see ICS).
23	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
24	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

12.2.1.4.4.2 Test procedure 2

Initial condition

System Simurator:

One cell operating in network operation mode II: MCC2/MNC1/LAC1/RAC1 (RAI-2). The PLMN of the cell should NOT be that of the Mobile Station Home PLMN.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The subscribers access rights is changed to allow PS attach. Then the PLMN from which this rejection was received is manually selected and the SS check that a PS attach is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C or A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
4	<-		ATTACH REJECT	GMM cause = 'PLMN not allowed'
5	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
6	UE			The current PLMN is selected manually.
7			Void	
8	UE			The UE initiates an attach automatically, by MMI or by AT command.
9	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
9a	<-		AUTHENTICATION AND CIPHERING REQUEST	
9b	->		AUTHENTICATION AND CIPHERING RESPONSE	
9c	SS			The SS starts integrity protection.
10	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
11	->		ATTACH COMPLETE	
12	UE			The UE is switched off or power is removed (see ICS).
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.1.4.5 Test requirements

Test requirements for test procedure 1

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, UE shall:

- not perform PS attach procedure.

UE shall perform the following actions depending on the PLMN or the routing area or the location area

Case 1) UE is in the same routing area or location area when the power is switched on,

At step11, UE shall:

- not perform PS attach procedure.

Case2) UE is in the same PLMN, and this PLMN is not selected manually

At step14, UE shall:

- not perform PS attach procedure.

Case3) UE is in a new PLMN.

At step19, UE shall:

- perform the PS attach procedure.

Test requirements for test procedure 2

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, UE shall:

- not perform PS attach procedure.

At step9, when the UE is in the new PLMN, and this PLMN is selected manually, UE shall

- perform the PS attach procedure.

12.2.1.5a PS attach / rejected / roaming not allowed in this location area

12.2.1.5a.1 Definition

12.2.1.5a.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment shall:

   1.1 not perform PS attach when in the same location area.

   1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for roaming' list.

   1.4 perform PS attach when a new location area is entered.

   1.5 Periodically search for its HPLMN.

2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

3) The UE shall be capable of storing at least 10 entries in the list of 'Forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5a.3 Test purpose

Test purpose 1

To test that on receipt of a rejection using the 'roaming not allowed in this location area' cause code, the UE ceases trying to attach on that location area. Successful PS attach procedure is possible in other location areas.

Test purpose 2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

Test purpose 3

To test that at least 6 entries can be held in the list of 'forbidden location areas for roaming' (the requirement in 3GPP TS 24.008 is to store at least 10 entries. This is not fully tested by the third procedure).

Test purpose 4

To test that if a cell of the Home PLMN is available then the UE returns to it in preference to any other available cell.

12.2.1.5a.4 Method of test

12.2.1.5a.4.1 Test procedure 1

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in

MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN) and cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN).

All three cells are operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. A new attempt for a PS attach is not possible. Successful PS attach / detach procedures are performed in another location area. A new attempt for a PS attach is performed in the 1st location area. This attempt shall not succeed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 19.
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
5		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
10	UE			The UE initiates an attach automatically, by MMI or by AT command.
10a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
11		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
11a		<-	AUTHENTICATION AND CIPHERING REQUEST	
11b		->	AUTHENTICATION AND CIPHERING RESPONSE	
11c		SS		The SS starts integrity protection.
12		<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6
13		->	ATTACH COMPLETE	
13a		SS		The SS releases the RRC connection.
14	UE			The UE initiates a PS detach (without power off) by MMI or by AT command .
14a		SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
15		->	DETACH REQUEST	Detach type = 'normal detach, PS detach'
16		<-	DETACH ACCEPT	
16a		SS		The SS releases the RRC connection.

17	SS		The following messages are sent and shall be received on cell C. Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
18	UE		Cell C is preferred by the UE.
19	UE		No ATTACH REQUEST sent to SS (SS waits 30 seconds). The UE is switched off or power is removed (see ICS)
20	UE		UE is switched off.
21	SS		Set the cell type of cell C to the "Non-Suitable cell". (see note)
22	UE		The UE is set in UE operation mode A if supported (see ICS) and the test is repeated from step 2 to step 20.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

12.2.1.5a.4.2 Test procedure 2

Initial condition

System Simulator:

One cell in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN) operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach updating with the cause value 'Roaming not allowed in this area'. The UE is switched off for 10 s and switched on again. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

If USIM removal is possible without switching off: The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. The USIM is removed and inserted in the UE. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
2b	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
4	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
5	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
5a	SS			The SS releases the RRC connection.
6	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
7	UE			The UE is powered up or switched on and initiates an attach (see ICS).
8				
8a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
9	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
9a	<-		AUTHENTICATION AND CIPHERING REQUEST	
9b	->		AUTHENTICATION AND CIPHERING RESPONSE	
9c	SS			The SS starts integrity protection.
10	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
11	->		ATTACH COMPLETE	
11a	SS			The SS releases the RRC connection.
12	UE			The UE is switched off or power is removed (see ICS).
12a	SS			SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
12b			Void	
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

12.2.1.5a.4.3 Test procedure 3

Initial condition

System Simulator:

Six cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-3, Not HPLMN), cell C in MCC2/MNC1/LAC3/RAC1 (Not HPLMN), cell D in MCC2/MNC1/LAC4/RAC1 (Not HPLMN), cell E in MCC2/MNC1/LAC5/RAC1 (Not HPLMN), cell F in MCC2/MNC1/LAC6/RAC1 (Not HPLMN).
All six cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area'. This is done for 6 different location areas. Then the SS checks that the UE does not attempt to perform an attach procedure on the non-allowed location areas.

Different types of UE may use different methods to periodically clear the list of forbidden areas (e.g. every day at 12am) for roaming. If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Non-Suitable cell". Set the cell type of cell F to the "Non-Suitable cell". (see note)
2	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
5		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	UE		Registration on CS	See TS 34.108 This is applied only in case of UE operation mode A. Parameter mobile identity is IMSI.
10	UE			The UE initiates an attach automatically, by MMI or by AT command.
10a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
11		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
12		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
13	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell C.
14		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
15	UE			Cell C is preferred by the UE.

Step	Direction		Message	Comments
	UE	SS		
16	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
17a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
18	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
19	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
20	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell D.
21a	SS			The SS releases the RRC connection.
21	SS			Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
22	UE			Cell D is preferred by the UE.
23	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
24	UE			The UE initiates an attach automatically, by MMI or by AT command.
24a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
25	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
26	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
27	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
27a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
				The following messages are sent and shall be received on cell E.
28	SS			Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Serving cell". (see note)
29	UE			Cell E is preferred by the UE.
30	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
31	UE			The UE initiates an attach automatically, by MMI or by AT command.
31a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
32	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
33	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
34	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
34a	SS			The SS releases the RRC connection.
				The following messages are sent and shall be received on cell F.

Step	Direction		Message	Comments
	UE	SS		
35		SS		Set the cell type of cell E to the "Non-Suitable cell". Set the cell type of cell F to the "Serving cell". (see note)
36	UE			Cell F is preferred by the UE.
37	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
38	UE			The UE initiates an attach automatically, by MMI or by AT command.
38a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
39	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
40	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
41	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
41a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell E.
42		SS		Set the cell type of cell E to the "Serving cell". Set the cell type of cell F to the "Non-Suitable cell". (see note)
43		SS		Cell E is preferred by the UE.
44	UE			The UE initiates an attach automatically, by MMI or by AT command.
45	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
46		SS		Set the cell type of cell C to the "Serving cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
47		SS		Cell C is preferred by the UE.
48	UE			The UE initiates an attach automatically, by MMI or by AT command.
49	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell A.
50		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
51		SS		Cell A will be preferred by the UE.
52	UE			The UE initiates an attach automatically, by MMI or by AT command.
53	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

12.2.1.5a.4.4 Test procedure4

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (not HPLMN, RAI-2) and cell B in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1).

Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this area A second cell belonging to the HPLMN is activated. It is checked that the UE returns to its HPLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-2
5	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
9	UE			The UE initiates an attach automatically, by MMI or by AT command.
9a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
10	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
10a	<-		AUTHENTICATION AND CIPHERING REQUEST	
10b	->		AUTHENTICATION AND CIPHERING RESPONSE	
10c		SS		The SS starts integrity protection.
11	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
12	->		ATTACH COMPLETE	
12a	->			The SS releases the RRC connection.
13	UE			The UE is switched off or power is removed (see ICS).
13a		SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
13b			Void	
14	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

15	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.1.5a.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform the PS attach procedure.

At step11, when the new location area is entered, UE shall:

- perform the PS attach procedure

At step19, when the rejected location area is entered, UE shall

- not perform PS attach procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform PS attach procedure.

At step9, when the UE is switched off or USIM is replaced, UE shall:

- perform the PS attach procedure.

Test requirements for Test procedure3

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, 13, 20, 27, 34 and 41, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform PS attach procedure.

At step11, 18, 25, 32 and 39 , UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step45, 49 and 53, UE shall:

- not perform PS attach procedure.

Test requirements for Test procedure4

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this area', UE shall:

- not perform PS attach procedure.

At step10, when a new location area is entered, UE shall:

- perform the PS attach procedure.

12.2.1.5b PS attach / rejected / No Suitable Cells In Location Area

12.2.1.5b.1 Definition

12.2.1.5b.2 Conformance requirement

(1) If the network rejects a PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

1.1 not perform PS attach when in the same location area.

1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

1.3 store the LA in the 'forbidden location areas for roaming' list.

1.4 not delete the list of "equivalent PLMNs".

1.5 perform PS attach when a new location area is entered.

Reference

3GPP TS 24.008 clauses 4.7.3.1.

12.2.1.5b.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'No Suitable Cells In Location Area'.

12.2.1.5b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6)

All three cells are operating in network operation mode II.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the equivalent PLMN and shall perform PS attach procedure in that cell.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-suitable cell". Set the cell type of cell C to the "Non-suitable cell". (see note)
3			Void	
3a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6	<-		DETACH REQUEST	Detach type = re-attach required
7	->		DETACH ACCEPT	
8		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
9			Void	
10	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
11	<-		ATTACH REJECT	GMM cause = 'No Suitable Cells In Location Area'
12		SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell C.
13	UE		Registration on CS	See TS 34.108
14	UE			The UE initiates an attach automatically, by MMI or by AT command.
14a				SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
15	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
16	<-		AUTHENTICATION AND CIPHERING REQUEST	
17	->		AUTHENTICATION AND CIPHERING RESPONSE	
18		SS		The SS starts integrity protection.
19	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1

20	->	ATTACH COMPLETE	
20a	SS		The SS releases the RRC connection.
21	UE		The UE is switched off or power is removed (see ICS).
21a	SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
22	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
23	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.2.1.5b.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step15, when the UE enters a suitable cell in a different location area on the equivalent PLMN, UE shall:

- perform the PS attach procedure.

12.2.1.5c PS attach / rejected / Location area not allowed

12.2.1.5c.1 Definition

12.2.1.5c.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Location area not allowed' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 reset the attach attempt counter.

   1.4 store the LAI in the list of "forbidden location areas for regional provision of service".

   1.1 perform a cell selection.

   1.2 not delete the list of "equivalent PLMNs".

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'Location area not allowed' and if the User Equipment is IMSI attached via MM procedures the User Equipment shall:

   2.1 set the update status to U3 ROAMING NOT ALLOWED.

   2.2 delete any TMSI, LAI and ciphering key sequence number.

   2.3 reset the location update attempt counter.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5c.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'Location area not allowed'.

12.2.1.5c.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode II (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Location area not allowed'. The SS checks that the UE does not perform MM IMSI attach while in the same location area and performs PS attach when a new equivalent PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			If UE operation mode A is supported, If UE operation mode C is supported, the UE is set in UE operation mode A (see ICS). If UE operation mode A is not supported, the UE is set in UE operation mode C.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". Set the cell type of cell C to the " Non-suitable cell " (see note)
3	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
3a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
4a	->		AUTHENTICATION AND CIPHERING REQUEST	
4b	<-		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6	<-		DETACH REQUEST	Detach type = re-attach required
7	->		DETACH ACCEPT	
8		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell ". Set the cell type of cell C to the " Suitable neighbour cell " (see note) The SS configures power level of each Cell as follows. Cell A > Cell B > Cell C
9			Void	
10	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
11	<-		ATTACH REJECT	GMM cause = 'Location area not allowed'
11a		SS		The SS releases the RRC connection.
12	UE			The UE performs cell selection. The following messages are sent and shall be received on cell C.
12a	UE		Registration on CS	See TS 34.108. This is applied only for UE in UE operation mode A.
12b	UE			SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìRegistrationî
13	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
14	<-		AUTHENTICATION AND CIPHERING REQUEST	
15	->		AUTHENTICATION AND CIPHERING RESPONSE	

16 17 18 19	SS <- -> UE	 ATTACH ACCEPT ATTACH COMPLETE 	The SS starts integrity protection. Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1 No MM IMSI attach request sent to SS (SS waits 30 seconds).
19a	SS		The SS releases the RRC connection.
20	UE		The UE is switched off or power is removed (see ICS).
20a 20b 21 22	SS UE -> SS	 Detach on CS DETACH REQUEST 	SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî. This is applied only for UE in UE operation mode A. Message not sent if power is removed. Detach type = 'power switched off, PS detach' The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.1.5c.5 Test requirements

At step4 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step12, UE shall:

- perform cell selection.

At step13, UE shall:

- perform PS attach procedure with Mobile identity = IMSI.

At step19, UE shall:

- not perform MM IMSI attach

12.2.1.5d PS attach / rejected / PS services not allowed in this PLMN

12.2.1.5d.1 Definition

12.2.1.5d.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'GPRS services not allowed in this PLMN' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 store the PLMN identity in the "forbidden PLMNs for PS service" list.

1.4 perform a PLMN selection instead of a cell selection, if the UE is in UE operation mode C.

2) If the UE is in UE operation mode A or B and the network is in network operation mode II the User Equipment shall:

2.1 be still IMSI attached for CS services in the network..

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5d.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PS service not allowed in this PLMN'.

12.2.1.5d.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
All three cells are operating in network operation mode II (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PS service not allowed in this PLMN'. The SS checks that the UE performs PS attach with attach type = PS attach when a new equivalent PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". Set the cell type of cell C to the " Non-suitable cell " (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Mobile identity = TMSI-1
5	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
5a	<-		AUTHENTICATION AND CIPHERING REQUEST	
5b	->		AUTHENTICATION AND CIPHERING RESPONSE	
5c		SS		The SS starts integrity protection.
6	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
7	<-		DETACH REQUEST	Detach type = re-attach required
8	->		DETACH ACCEPT	
9		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell ". Set the cell type of cell C to the " Suitable neighbour cell " (see note)
10	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
11	<-		ATTACH REJECT	GMM cause = 'PS service not allowed in this PLMN'
12	UE			The UE performs PLMN selection. The following messages are sent and shall be received on cell C.
13	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
14	<-		AUTHENTICATION AND CIPHERING REQUEST	
15	->		AUTHENTICATION AND CIPHERING RESPONSE	
16		SS		The SS starts integrity protection.
17	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-7 Equivalent PLMNs = MCC1,MNC1
18	->		ATTACH COMPLETE	
19	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
20			Void	
21	->		RRC CONNECTION REQUEST	

22	<-	RRC CONNECTION SETUP	
23	->	RRC CONNECTION SETUP COMPLETE	
24	->	PAGING RESPONSE	
25	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
26	->	RRC CONNECTION RELEASE COMPLETE	
27	UE		The UE is switched off or power is removed (see ICS).
28	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
29	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.1.5d.5 Test requirements

At step5 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step12, UE shall:

- perform PLMN selection.

At step13, UE shall:

- perform PS attach procedure with Mobile identity = IMSI to the equivalent cell.

At step21, UE shall:

- respond the Paging for CS domain service.

12.2.1.6 PS attach / abnormal cases / access barred due to access class control

12.2.1.6.1 Definition

12.2.1.6.2 Conformance requirement

1) The UE shall not perform PS attach procedure, but stays in the current serving cell and applies normal cell reselection process.

2) The User Equipment shall perform the PS attach procedure when:

   2.1 Access is granted.

   2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.6.3 Test purpose

Test purpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test purpose2

To test the behaviour of the UE in case of access class control (Cell is changed).

12.2.1.6.4 Method of test

12.2.1.6.4.1 Test procedure1

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred.

System Simulator:

One cell operating in network operation mode II.
Access class x barred.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

The SS indicates that access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The USIM is programmed with access class x.
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 12.
3	UE			The UE is powered up or switched on and attempts to initiate an attach (see ICS).
4	UE			No ATTACH REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
5	SS			The access class x is not barred anymore.
6	UE			The UE initiates a PS attach either automatically or manually (see ICS).
7	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	
7b	->		AUTHENTICATION AND CIPHERING RESPONSE	
7c	SS			The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
9	->		ATTACH COMPLETE	
10	UE			The UE is switched off or power is removed (see ICS).
11	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
11a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
12	SS			The SS is set in network operation mode II.
13	UE			The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 11.

12.2.1.6.4.2 Test procedure2

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell A.

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x barred, cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred.
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid P-TMSI-2 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The USIM is programmed with access class x.
		SS		The following messages are sent and shall be received on cell A.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is set in UE operation mode C (see ICS).
4	UE			The UE is powered up or switched on and attempts to initiate an attach (see ICS).
5	UE			No ATTACH REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			The UE initiates an attach either automatically or manually (see ICS).
8	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-1
8a	<-		AUTHENTICATION AND CIPHERING REQUEST	
8b	->		AUTHENTICATION AND CIPHERING RESPONSE	
8c	SS			The SS starts integrity protection.
9	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
10	->		ATTACH COMPLETE	
11	UE			The UE is switched off or power is removed (see ICS).
12	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
13		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.2.1.6.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE access class x is barred, UE shall:

- not perform a PS attach procedure.

At step7, when the UE access class x is granted, UE shall:

initiate the PS attach procedure.

Test requirements for Test procedure2

At step5, when the UE access class x is barred, UE shall:

- not perform a PS attach procedure.

At step8, when the serving cell is changed, UE shall:

- initiate the PS attach procedure.

12.2.1.7 PS attach / abnormal cases / change of routing area

12.2.1.7.1 Definition

12.2.1.7.2 Conformance requirement

If a cell change into a new routing area occurs before an ATTACH ACCEPT or ATTACH REJECT message has been received, the GPRS attach procedure shall be aborted and re-initiated immediately.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.7.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.7.4 Method of test

Initial condition

System Simulator:

One cell with MCC1/MNC1/LAC1/RAC1 (RAI-1)
The cell is operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The ATTACH ACCEPT message is delayed from the SS. The UE receive a new routing area code. The UE shall re-initiate a PS attach procedure in the new routing area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5		SS		No response to the ATTACH REQUEST message is given by the SS.
6			Void	
6a		<-	UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code. Note: SS transmits the updated system information with the new RAI information in SIB1
6b		->	UTRAN MOBILITY INFORMATION CONFIRM	
7	UE			The UE automatically re-initiates the attach.
8		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
8a		<-	AUTHENTICATION AND CIPHERING REQUEST	
8b		->	AUTHENTICATION AND CIPHERING RESPONSE	
8c		SS		The SS starts integrity protection.
9		<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-4
10	UE			The UE is switched off or power is removed (see ICS).
11		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
11a				The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

UTRAN MOBILITY INFORMATION (step 6a)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	Infinity
- ATT	0
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	1 (Network Mode of Operation II)
- CN domain specific DRX cycle length coefficient	7

12.2.1.7.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected sequence.

At step8, as the UE has received a new RAI in the UTRAN MOBILITY INFORMATION message before the ATTACH ACCEPT message or the ATTACH REJECT message is received by the UE, the UE shall:

- abort the PS attach procedure and re-initiate the PS attach procedure immediately with new information elements.

12.2.1.8 PS attach / abnormal cases / power off

12.2.1.8.1 Definition

12.2.1.8.2 Conformance requirement

When power is switched off before ATTACH ACCEPT message is received by the UE, the UE shall abort the PS attach procedure and perform a PS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.

12.2.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is switched off after initiating an attach procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 7.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4	SS			No response to the ATTACH REQUEST message is given by the SS.
5	UE			The UE is powered off and initiates a PS detach (with power off) by
6	->		DETACH REQUEST	Detach type = 'power switched off, PS detach'
7	UE			The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 6.

Specific message contents

None.

12.2.1.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when power is switched off before ATTACH ACCEPT message is received, UE shall:

- abort the PS attach procedure and perform the PS detach procedure.

12.2.1.9 PS attach / abnormal cases / PS detach procedure collision

12.2.1.9.1 Definition

12.2.1.9.2 Conformance requirement

1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message, the UE shall terminate the PS attach procedure and continue with the PS detach procedure.

2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message, the UE shall ignore the PS detach procedure and continue with the PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (any cause except re-attach). The UE shall terminate the PS attach procedure and continue with the PS detach procedure**.**

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (cause re-attach). The UE shall ignore the PS detach procedure and continue with the PS attach.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
5	<-		DETACH REQUEST	Detach type = 're-attach not required'
6	->		DETACH ACCEPT	
7	UE			The UE initiates the attach procedure by MMI or AT command.
8	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
9	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 're-attach required'
11	UE			The UE ignores the DETACH REQUEST message and continue with the attach procedure.
12	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
16	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.1.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Detach type in the DETACH REQUEST message.

Case1) Detach type = 're-attach not required' GMM cause is not re-attach

At step6, when the DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message, UE shall:

- terminate the PS attach procedure and continue with the PS detach procedure.

Case2) Detach type = 're-attach required'

At step11, when the DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message, UE shall:

- ignore the PS detach procedure and continue with the PS attach procedure.

12.2.1.10 PS attach / abnormal cases / Failure due to non-integrity protection

12.2.1.10.1 Definition

12.2.1.10.2 Conformance requirement

Except the messages listed below, no layer 3 signalling messages shall be processed by the receiving MM and GMM entities or forwarded to the CM entities, unless the security mode control procedure is activated for that domain.

- GMM messages:
  - AUTHENTICATION & CIPHERING REQUEST
  - AUTHENTICATION & CIPHERING REJECT
  - IDENTITY REQUEST
  - ATTACH REJECT
  - ROUTING AREA UPDATE ACCEPT (at periodic routing area update with no change of routing area or temporary identity)
  - ROUTING AREA UPDATE REJECT
  - SERVICE REJECT
  - DETACH ACCEPT (for non power-off)

Reference(s):

3GPP TS 24.008 clause 4.1.1.1.1

12.2.1.10.3 Test purpose

To verify that the UE ignores NAS signalling messages when the security mode procedure is not activated.

12.2.1.10.4 Method of test

Initial Conditions

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid IMSI.

Related ICS Statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
Switch off on button	Yes/No

Test procedure

The attach procedure is initiated. Upon reception of ATTACH REQUEST message from the UE, the SS responds with an ATTACH ACCEPT message without the integrity protection. The UE shall ignore this message and re-transmit ATTACH REQUEST message at expiry of timer T3310.

This time the SS starts the authentication procedure and initiates the integrity protection. After receiving ATTACH ACCEPT message, the UE shall respond to ATTACH COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach procedure (see ICS).
3	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN
6	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
7	SS			The SS does not initiate the security mode procedure.
8	<-		ATTACH ACCEPT	
9	UE			The UE ignores ATTACH ACCEPT message.
10	SS			The SS waits 15 sec (T3310).
11	->		ATTACH REQUEST	The UE re-transmits the message. The SS verifies that the period of time between the ATTACH REQUEST messages corresponds to the value of T3310. Attach type = 'PS attach' Mobile identity = IMSI
12	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN
13	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
14	SS			The SS starts integrity protection.
15	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI
16	->		ATTACH COMPLETE	
17	UE			The UE is switched off or power is removed (see ICS).
18	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
19	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific Message Contents

None.

12.2.1.10.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall;

- ignore the first ATTACH ACCEPT message.

At step11, UE shall;

- re-transmit ATTACH REQUEST message after expiry of timer T3310.

At step16, UE shall;

- respond to ATTACH COMPLETE message after the UE receives the second ATTACH ACCEPT message.

12.2.2 Combined PS attach

12.2.2.1 Combined PS attach / PS and non-PS attach accepted

12.2.2.1.1 Definition

12.2.2.1.2 Conformance requirement

1) If the network accepts the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.

2) If the network accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

3) If the network accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI, the UE shall continue communication with the previously used P-TMSI.

4) If the network accepts the combined PS attach procedure and determines that IMSI shall be used in CS operations, the UE shall continue communication with the IMSI for CS operations.

5) If the network accepts the combined PS attach procedure and determines that a TMSI shall be used in CS operations, the UE shall continue communication with the TMSI for CS operations.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is allocated;

2) P-TMSI / P-TMSI signature is reallocated;

3) Old P-TMSI / P-TMSI signature is not changed;

4) Mobile terminating CS call is allowed with IMSI;

5) Mobile terminating CS call is not allowed with TMSI.

12.2.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I. ATT flag is set to 0.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the IMSI is used.

2) The UE is CS paged in order to verify that the IMSI is used for CS calls.

3) The UE is PS paged in order to verify that the new P-TMSI is used for PS services.

4) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS allocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI and a new TMSI. The UE acknowledge the P-TMSI and the TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the new TMSI is used. The UE is CS paged in order to verify that the new TMSI is used for CS services.

5) The UE is PS paged in order to verify that the new P-TMSI is used for PS services. The UE will not answer signalling addressed to the old P-TMSI.

6) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the previously used P-TMSI.

7) The UE is PS paged in order to verify that the previously used P-TMSI is used for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature ~~Mobile~~ MS identity =IMSI Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.
6	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call"
7	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
8			Void	
9			Void	
10	->		PAGING RESPONSE	Mobile identity = IMSI
11	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services Paging cause = "Terminating interactive call"
13a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
13b			Void	
13c			Void	
14	->		SERVICE REQUEST	service type = "paging response"
14aa	SS			The SS starts integrity protection.
14a	SS			The SS releases the RRC connection.
14b			Void	
15	UE			The UE is switched off or power is removed (see ICS).
15a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
16a	SS			If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

Step	Direction		Message	Comments
	UE	SS		
17	UE			The UE is powered up or switched on and initiates an attach (see ICS).
17a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 TMSI status = no valid TMSI available Old Routing area identity = RAI-1
18a	<-		AUTHENTICATION AND CIPHERING REQUEST	
18b	->		AUTHENTICATION AND CIPHERING RESPONSE	
18c		SS		The SS starts integrity protection.
19	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
20	->		ATTACH COMPLETE	
21			Void	
21b			Void	
21c		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
22	<-		PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call"
23		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
24			Void	
25			Void	
26	->		PAGING RESPONSE	Mobile identity = TMSI-1
27		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
28			Void	
29	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services Paging cause = "Terminating interactive call"
29a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
29b			Void	
29c			Void	
30	->		SERVICE REQUEST	service type = "paging response"
30aa		SS		The SS starts integrity protection.
30a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
30b			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services Paging cause = "Terminating interactive call"
32	UE			No response from the UE to the request. This is checked for 10 seconds.
33	UE			The UE is switched off or power is removed (see ICS).
33a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
34	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

Step	Direction		Message	Comments
	UE	SS		
34a		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
35	UE			The UE is powered up or switched on and initiates an attach (see ICS).
35a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
36	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE not present
36a	<-		AUTHENTICATION AND CIPHERING REQUEST	
36b	->		AUTHENTICATION AND CIPHERING RESPONSE	
36c		SS		The SS starts integrity protection.
37	<-		ATTACH ACCEPT	No new mobile identity assigned. TMSI and P-TMSI not included. Attach result = 'Combined PS / IMSI attached' P-TMSI-3 signature Routing area identity = RAI-1
37a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
38	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services Paging cause = "Terminating interactive call"
38a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
38b			Void	
38c			Void	
39	->		SERVICE REQUEST	service type = "paging response"
39aa		SS		The SS starts integrity protection.
39a		SS		The SS releases the RRC connection.
39b			Void	
40	UE			The UE is switched off or power is removed (see ICS).
40a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
41	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
42		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

Specific message contents

None.

12.2.2.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

Case 1) SS accept the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI.

At step5, UE shall

- send the ATTACH COMPLETE message.

At step10, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step14, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

Case 2) SS accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI and TMSI.

At step20, UE shall:

- send the ATTACH COMPLETE message.

At step26, when the UE receives the paging message for CS domain with Mobile identity = TMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step30, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

Case 3) SS accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI.

At step39, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.2 Combined PS attach / PS only attach accepted

12.2.2.2.1 Definition

12.2.2.2.2 Conformance requirement

1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.

2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.2.3 Test purpose

Test purpose1

To test the behaviour of the UE if the network accepts the PS attach procedure with indication PS only, GMM cause 'IMSI unknown in HLR'.

Test purpose2

To test the behaviour of the UE which does not support an automatic MM IMSI attach if the network accepts the PS attach procedure with indication PS only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

Test purpose 3

To test the behaviour of the UE which supports an automatic MM IMSI attach if the network accepts the PS attach procedure with indication PS only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.2.2.2.4 Method of test

12.2.2.2.4.1 Test procedure1

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature GMM cause = 'IMSI unknown in HLR' Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
7	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
8	UE			The UE is switched off or power is removed (see ICS).
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
10	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

12.2.2.2.4.2 Test procedure2

Initial condition

System Simulator:

One cell operating in network operation mode I. T3212 and T3302 is set to 6 minutes.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS returns a ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The ROUTING AREA UPDATE procedure is

repeated four times. An UE operation mode A UE may then perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is indicated (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
5	->		ATTACH COMPLETE	
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-2 signature Old Routing area identity = RAI-1
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-3 signature Old Routing area identity = RAI-1
11	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-4 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-4 signature Old Routing area identity = RAI-1
13	SS			The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.
14	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-5 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)

Step	Direction		Message	Comments
	UE	SS		
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-5 signature Old Routing area identity = RAI-1
17	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-6 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
18-20			(void)	
21	UE			The UE is switched off or power is removed (see ICS).
22	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'. Stop the sequence.
23	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

12.2.2.2.4.3 Test procedure 3

Initial condition

System Simulator:

One cell operating in network operation mode I. T3212 and T3302 is set to 6 minutes.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS returns a ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The ROUTING AREA UPDATE procedure is repeated four times. An UE operation mode A UE may then perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Automatic MM IMSI attach procedure is indicated (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = 'PS only attached' P-TMSI-2 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
5	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-2 signature Old Routing area identity = RAI-1
6	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-3 signature Old Routing area identity = RAI-1
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-4 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-4 signature Old Routing area identity = RAI-1
10	SS			The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.
11	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-5 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' Old P-TMSI signature =P-TMSI-5 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available

Step	Direction		Message	Comments
	UE	SS		
13		SS		The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.
14		<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-6 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
15	UE			An automatic MM IMSI attach procedure is initiated.
16	UE		Registration on CS	Optional step. See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI Steps 4917 - 5523 are only performed if the UE has performed the Registration Procedure in step 4116.
17		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
18		->	RRC CONNECTION REQUEST	
19		<-	RRC CONNECTION SETUP	
20		->	RRC CONNECTION SETUP COMPLETE	
21		->	PAGING RESPONSE	Mobile identity = TMSI-1
22		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
23		->	RRC CONNECTION RELEASE COMPLETE	
24	UE			The UE is switched off or power is removed (see ICS).
25		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
26		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.2.2.5 Test requirements

Test requirements for Test porpose1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

Test requirements for Test porpose2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, 10, 12 and 16, when the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

Test requirements for Test porpose3

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step5, 7, 9 and 11, when the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

At step16, UE shall:

- perform MM location updating procedure.

At step21, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.2.2.3 Combined PS attach / PS attach while IMSI attach

12.2.2.3.1 Definition

12.2.2.3.2 Conformance requirement

If the PS UE is already attached for non-PS services by the MM specific attach procedure, but wants to perform an attach for PS services, the combined PS attach procedure is performed.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.3.3 Test purpose

To test the behaviour of the UE if PS attach performed while IMSI attached.

12.2.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I. ATT flag is set.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is forced to register for CS services but not to PS services. The SS verifies that the UE does not respond to paging messages for PS domain. Then the UE is triggered to perform the PS attach procedure and the SS verifies that it responds to PS paging messages.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS) and configured not to perform an automatic PS attach at switch on.
2	UE			The UE is powered up or switched on. No PS attach is performed (see ICS).
3			Registration on CS	See TS 34.108 Location updating type = IMSI attach. The SS allocates TMSI-1
4	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
5	UE			No response from the UE to the request. This is checked for 10 seconds.
6	UE			The UE is triggered to perform a PS attach.
7	->		ATTACH REQUEST	Attach type = 'PS attach while IMSI attached' or 'Combined PS / IMSI attached' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	
7b	->		AUTHENTICATION AND CIPHERING RESPONSE	
7c	SS			The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' No new mobile identity assigned. TMSI and P-TMSI not included P-TMSI-2 signature Routing area identity = RAI-1
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	->		RRC CONNECTION REQUEST	
11	<-		RRC CONNECTION SETUP	
12	->		RRC CONNECTION SETUP COMPLETE	
13	->		SERVICE REQUEST	service type = "paging response"
14	<-		RRC CONNECTION RELEASE	
15	->		RRC CONNECTION RELEASE COMPLETE	
16	UE			The UE is switched off or power is removed (see ICS).
17	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
18	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.2.3.5 Test requirements

UE is already attached for non-PS service with the MM specific attach procedure.

At step5, UE shall:

- not respond to the paging message for PS domain.

At step7, when the UE is requested to attach for PS services, UE shall:

- perform the combined PS attach procedure.

At step13, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.4 Combined PS attach / rejected / IMSI invalid / illegal ME

12.2.2.4.1 Definition

12.2.2.4.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'Illegal ME'.

12.2.2.4.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1(RAI-2).
All three cells are operating in network operation mode I.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN. CS services are not possible as the USIM is blocked for CS services. PS services are not possible as the USIM is blocked for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
5		<-	ATTACH REJECT	GMM cause 'Illegal ME'.
6	UE		PAGING TYPE1	Mobile identity = TMSI-1Paging order is for CS services.
7	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
8		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services
9	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
10		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell B.
12		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
13	UE			Cell B is preferred by the UE.
14	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
15		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
				The following messages are sent and shall be received on cell C.
17		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
18	UE			Cell C is preferred by the UE.
19	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
20		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services
21	UE			No response from the UE to the request. This is checked for 10 seconds.
22	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
23	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).

Step	Direction		Message	Comments
	UE	SS		
24	UE			Step 25 is only performed for non-auto attach UE. A location updating procedure is initiated.
25	UE		Registration on CS	See TS34.108 Parameter Mobile identity is IMSI.
26	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
27	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
27a	<-		AUTHENTICATION AND CIPHERING REQUEST	
27b	->		AUTHENTICATION AND CIPHERING RESPONSE	
27c	SS			The SS starts integrity protection.
28	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature ~~Mobile~~MS identity = TMSI-1 Routing area identity = RAI-2
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-2
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
37	UE			The UE is switched off or power is removed (see ICS).
38	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
39	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.2.4.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, 9 and 16, when the UE receives the paging message for CS domain, UE shall,

- not respond to the paging message for CS domain.

At step11 and 21, when the UE receives the paging message for PS domain, UE shall,

- not respond to the paging message for PS domain.

At step27, when the USIM is replaced, UE shall:

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain, UE shall,

- respond to the paging message for CS domain by sending the RAGING RESPONSE message.

12.2.2.5 Combined PS attach / rejected / PS services and non-PS services not allowed

12.2.2.5.1 Definition

12.2.2.5.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services and non-PS services not allowed', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services and non-PS services not allowed', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.5.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'PS services and non-PS services not allowed'.

12.2.2.5.4 Method of test

Initial condition

System Simulator:

- Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
  Both cells are operating in network operation mode I.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

- The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PS services and non-PS services not allowed'. The SS checks that the UE does not perform PS attach in the same or another PLMN. CS services are not possible as the USIM is blocked for CS services. PS services are not possible as the USIM is blocked for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
5	<-		ATTACH REJECT	GMM cause 'PS services and non-PS services not allowed'
6	UE			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
7	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS Paging.
10	UE			No response from the UE to the request. This is checked for 10 seconds
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
12			(void)	
13	UE			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
14	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
15	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
16	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
17	UE			No response from the UE to the request. This is checked for 10seconds.
18	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
19	UE			The UE is powered up or switched.
20	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is IMSI.
21	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
22	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
22a	<-		AUTHENTICATION AND CIPHERING REQUEST	
22b	->		AUTHENTICATION AND CIPHERING RESPONSE	
22c	SS			The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
23		<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-2
24		->	ATTACH COMPLETE	
25		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
26		->	RRC CONNECTION REQUEST	
27		<-	RRC CONNECTION SETUP	
28		->	RRC CONNECTION SETUP COMPLETE	
29		->	PAGING RESPONSE	Mobile identity = TMSI-1
30		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
31		->	RRC CONNECTION RELEASE COMPLETE	
32		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services.
33		->	RRC CONNECTION REQUEST	
34		<-	RRC CONNECTION SETUP	
35		->	RRC CONNECTION SETUP COMPLETE	
36		->	SERVICE REQUEST	Service type = "paging response"
37		<-	RRC CONNECTION RELEASE	
38		->	RRC CONNECTION RELEASE COMPLETE	
39	UE			The UE is switched off or power is removed (see ICS).
40		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
41	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.2.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8 and 14, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step10 and 17, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step22, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure.

At step29, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step36, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.6 Combined PS attach / rejected / PS services not allowed

12.2.2.6.1 Definition

12.2.2.6.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

3) A PS class AUE shall perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.6.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PS services not allowed'.

12.2.2.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode I.
ATT flag set to 1

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach. PS services are not possible. An UE operation mode A UE shall perform an MM IMSI attach.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on.
2a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
2b	UE			UE initiates an attach automatically (see ICS), via MMI or AT commands.
3		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
4		<-	ATTACH REJECT	GMM cause 'PS services not allowed'
5	UE			An automatic MM IMSI attach procedure is initiated.
6	UE		Registration on CS	See TS 34.108 Location updating type = IMSI attach. The SS allocates TMSI-2.
7		<-	PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
8		->	RRC CONNECTION REQUEST	
9		<-	RRC CONNECTION SETUP	
10		->	RRC CONNECTION SETUP COMPLETE	
11		->	PAGING RESPONSE	Mobile identity = TMSI-2
12		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signaling link.
13		->	RRC CONNECTION RELEASE COMPLETE	
				The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			A location updating procedure is initiated.
17	UE		Registration on CS	See TS 34.108 Location updating type = normal. The SS allocates TMSI-1.
18		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
19		->	RRC CONNECTION REQUEST	
20		<-	RRC CONNECTION SETUP	
21		->	RRC CONNECTION SETUP COMPLETE	
22		->	PAGING RESPONSE	Mobile identity = TMSI-1
23		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
24		->	RRC CONNECTION RELEASE COMPLETE	
25		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services
26	UE			No response from the UE to the request. This is checked for 10seconds.
27	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.

Step	Direction		Message	Comments
	UE	SS		
27a	UE			If switch off is performed then UE performs IMSI detach procedure.
28	UE			The UE is powered up or switched.
28a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
28b	UE			UE initiates an attach automatically (see ICS), via MMI or AT commands.
29	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity = IMSI
29a	<-		AUTHENTICATION AND CIPHERING REQUEST	
29b	->		AUTHENTICATION AND CIPHERING RESPONSE	
29c	SS			The SS starts integrity protection.
30	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-2
31	->		ATTACH COMPLETE	
32	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
33	->		RRC CONNECTION REQUEST	
34	<-		RRC CONNECTION SETUP	
35	->		RRC CONNECTION SETUP COMPLETE	
36	->		PAGING RESPONSE	Mobile identity = TMSI-2
37	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
38	->		RRC CONNECTION RELEASE COMPLETE	
39	UE			The UE is switched off or power is removed (see ICS).
40	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
41	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.2.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, if the UE is PS class A, UE shall:

- perform the MM IMSI attach procedure.

At step11, 22 and 36, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step26, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step29, UE shall:

- perform the PS attach procedure.

12.2.2.7a Combined PS attach / rejected / location area not allowed

12.2.2.7a.1 Definition

12.2.2.7a.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for regional provision of service'.

   1.4 not delete the list of "equivalent PLMNs".

   1.5 perform a cell selection.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   2.1 perform combined PS attach when a new location area is entered.

   2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.2.2.7a.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All cells are operating in network operation mode I.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
Switch off on button	Yes/No
Automatic PS attach procedure at switch on or power on	Yes/No
PS attach attempted automatically by outstanding request	Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or "PS Attach while IMSI attached" Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3b		<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
3c		<-	DETACH REQUEST	Detach type = re-attach required
3d		->	DETACH ACCEPT	
4		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or "PS Attach while IMSI attached" Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5		<-	ATTACH REJECT	GMM cause 'Location Area not allowed'
6	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
7		<-	PAGING TYPE1	Mobile identity = TMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10		->		No response from the UE to the request. This is checked for 10 seconds
				The following messages are sent and shall be received on cell B.
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
11a	UE			The UE performs cell selection.
12	UE			Cell B is preferred by the UE.
13	UE			No ATTACH REQUEST or LOCATION UPDATING REQ is sent to SS (SS waits 60 seconds)
15		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
16	UE			No response from the UE to the request. This is checked for 10seconds.
17	UE			The UE initiates an attach by MMI or AT command.
18				No attach is performed by the UE. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell C.

Step	Direction		Message	Comments
	UE	SS		
19		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
19a		UE		The UE performs cell selection
20		UE		Cell C is preferred by the UE. Step 20a and 20b are only performed by an UE which will not initiate a PS attach automatically (see ICS)
20a conditional		UE	Registration on CS	Parameter Mobile identity is IMSI. See TS 34.108
20b conditional		UE		UE initiates an attach via MMI or AT commands.
21	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c		SS		The SS starts integrity protection.
22	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
23	->		ATTACH COMPLETE	
24	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
25	->		RRC CONNECTION REQUEST	
26	<-		RRC CONNECTION SETUP	
27	->		RRC CONNECTION SETUP COMPLETE	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
30	->		RRC CONNECTION RELEASE COMPLETE	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
32	->		RRC CONNECTION REQUEST	
33	<-		RRC CONNECTION SETUP	
34	->		RRC CONNECTION SETUP COMPLETE	
35	->		SERVICE REQUEST	Service type = "paging response"
36	<-		RRC CONNECTION RELEASE	
37	->		RRC CONNECTION RELEASE COMPLETE	
38		UE		The UE is switched off or power is removed (see ICS).
39	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
39a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B.

Step	Direction		Message	Comments
	UE	SS		
40	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note) Cell B is preferred by the UE.
41	UE			The UE is powered up or switched on and initiates an attach (see ICS).
42				Step 43 is only performed for non-auto attach UE.
43	UE		Registration on CS	See TS 34.108
44	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
45	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or "PS Attach while IMSI attached" Mobile identity = P-TMSI-1 Old Routing area identity = RAI-6
45a	<-		AUTHENTICATION AND CIPHERING REQUEST	
45b	->		AUTHENTICATION AND CIPHERING RESPONSE	
45c	SS			The SS starts integrity protection.
46	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-4 Equivalent PLMNs = MCC2,MNC1
47	->		ATTACH COMPLETE	
48	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
49	->		RRC CONNECTION REQUEST	
50	<-		RRC CONNECTION SETUP	
51	->		RRC CONNECTION SETUP COMPLETE	
52	->		PAGING RESPONSE	Mobile identity = TMSI-2
53	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
54	->		RRC CONNECTION RELEASE COMPLETE	
55	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
56	->		RRC CONNECTION REQUEST	
57	<-		RRC CONNECTION SETUP	
58	->		RRC CONNECTION SETUP COMPLETE	
59	->		SERVICE REQUEST	service type = "paging response"
60	<-		RRC CONNECTION RELEASE	
61	->		RRC CONNECTION RELEASE COMPLETE	
62	UE			The UE is switched off or power is removed (see ICS).
63	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
64	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.2.2.7a.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Location Area not allowed', UE shall:

- not initiate MM location updating procedure.

At step8, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step10 and 16, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 18, when the UE is in the same location area, UE shall:

- not perform PS attach procedure.

At step21, when the UE enters a new location area, UE shall

- perform the combined PS attach procedure.

At step28 and 52, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35 and 59, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step45, when the UE is powered up or switched on, UE shall:

- perform the combined PS attach procedure.

12.2.2.7b Combined PS attach / rejected / No Suitable Cells In Location Area

12.2.2.7b.1 Definition

12.2.2.7b.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for roaming'.

   1.4 not delete the list of "equivalent PLMNs".

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   2.1 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'No Suitable Cells In Location Area'.

12.2.2.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the same PLMN and shall perform combined PS attach procedure in that cell

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 **Old** Routing area identity = RAI-1
5		<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6		<-	DETACH REQUEST	Detach type = re-attach required
7		->	DETACH ACCEPT	
8		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
9		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
10		<-	ATTACH REJECT	GMM cause = 'No Suitable Cells In Location Area'
11		SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell B.
12	UE			The UE initiates an attach automatically, by MMI or by AT command.
13		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
14		<-	AUTHENTICATION AND CIPHERING REQUEST	
15		->	AUTHENTICATION AND CIPHERING RESPONSE	
16		SS		The SS starts integrity protection.
17		<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
18		->	ATTACH COMPLETE	
19	UE			The UE is switched off or power is removed (see ICS).
20		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

21	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.2.7b.5 Test requirements

At step4 and 9, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected sequence.

At step13, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- initiate the combined PS attach procedure.

12.2.2.7c Combined PS attach / rejected / Roaming not allowed in this location area

12.2.2.7c.1 Definition

12.2.2.7c.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Roaming area not allowed in this location area' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 delete any TMSI, LAI and ciphering key sequence number.

   1.4 store the LAI in the list of "forbidden location areas for roaming".

   1.5 perform a PLMN selection.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.2.7c.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'Roaming not allowed in this location area'.

12.2.2.7c.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) , cell C in MCC1/MNC1/LAC2/RAC2 (RAI-12)
All three cells are operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming area not allowed in this location area'. The SS checks that the UE performs PLMN selection.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or "PS Attach while IMSI attached" Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5		<-	ATTACH REJECT	GMM cause = 'Roaming area not allowed in this location area'
6	UE			No LOCATION UPDATING REQ and ATTACH REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
7		<-	PAGING TYPE1	Mobile identity = TMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10		->		No response from the UE to the request. This is checked for 10 seconds
11	UE			UE performs PLMN selection.
		SS		The following messages are sent and shall be received on cell B.
12		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
13	UE			Cell B is preferred by the UE.
14	UE			No LOCATION UPDATING REQ is sent to SS (SS waits 60 seconds)
15		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
15a		<-	AUTHENTICATION AND CIPHERING REQUEST	
15b		->	AUTHENTICATION AND CIPHERING RESPONSE	
15c		SS		The SS starts integrity protection.
16		<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-4
17		->	ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell C.
18		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
19	UE			Cell C is preferred by the UE.
20	UE		Registration on CS	Parameter Mobile identity is IMSI. See TS 34.108
21	UE			UE initiates an attach automatically (see ICS) via MMI or AT commands.

Step	Direction		Message	Comments
	UE	SS		
22		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
23	->		RRC CONNECTION REQUEST	
24	<-		RRC CONNECTION SETUP	
25	->		RRC CONNECTION SETUP COMPLETE	
26	->		PAGING RESPONSE	Mobile identity = TMSI-1
27	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
28	->		RRC CONNECTION RELEASE COMPLETE	
29	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
30	->		RRC CONNECTION REQUEST	
31	<-		RRC CONNECTION SETUP	
32	->		RRC CONNECTION SETUP COMPLETE	
33	->		SERVICE REQUEST	Service type = "paging response"
34	<-		RRC CONNECTION RELEASE	
35	->		RRC CONNECTION RELEASE COMPLETE	
36	UE			The UE is switched off or power is removed (see ICS).
37	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
38	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.2.7c.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, UE shall:

- not perform MM IMSI attach and PS attach.

At step8, UE shall:

- not respond to paging for CS domain service.

At step10, UE shall:

- not respond to paging for PS domain service.

At step15, UE shall:

- perform PS attach procedure.

At step20, UE shall:

- perform MM IMSI attach procedure.

12.2.2.7d Combined PS attach / rejected / PS services not allowed in this PLMN

12.2.2.7d.1 Definition

12.2.2.7d.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PS service not allowed in this PLMN' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 store the PLMN identity in the "forbidden PLMNs for PS service" list.

2) If the UE is in UE operation mode A the User Equipment shall:

   2.1 perform IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.2.7d.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PS service not allowed in this PLMN'.

12.2.2.7d.4 Method of test

Initial condition

System Simulator:

Two cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2). All two cells are operating in network operation mode I.

The PLMN contains Cell B is equivalent to the PLMN that contains Cell A.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PS service not allowed in this PLMN'. The SS checks that the UE does not perform PS attach and performs an IMSI attach for non-PS services by use of the MM IMSI attach procedure when in the same cell.

After the cell is changed to equivalent PLMN, the UE shall perform PS attach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		The SS is set in network operation mode I. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
5	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
6	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
7	<-		DETACH REQUEST	Detach type = re-attach required
8	->		DETACH ACCEPT	
9	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
10	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
11	<-		ATTACH REJECT	GMM cause = 'PS service not allowed in this PLMN'
12	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
13		SS		Set the cell type of cell A to the " Non-suitable cell ". Set the cell type of cell B to the " Serving cell". (see note) The following messages are sent and shall be received on cell B.
14	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
15	<-		AUTHENTICATION AND CIPHERING REQUEST	
16	->		AUTHENTICATION AND CIPHERING RESPONSE	
17		SS		The SS starts integrity protection.
18	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 Equivalent PLMNs = MCC1,MNC1
19	->		ATTACH COMPLETE	
20	UE			The UE is switched off or power is removed (see ICS).
21	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.2.7d.5 Test requirements

At step5 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step4 and 9, UE shall:

- perform MM IMSI attach.

At step12, UE shall:

- not perform PS attach procedure.

At step14, UE shall:

- perform PS attach procedure.

12.2.2.8 Combined PS attach / abnormal cases / attempt counter check / miscellaneous reject causes

12.2.2.8.1 Definition

12.2.2.8.2 Conformance requirement

1) When a combined PS attach procedure is rejected with the attempt counter less than five, the User Equipment shall repeat the combined PS attach procedure after T3311 timeout.

2) When a combined PS attach procedure is rejected with the attempt counter five, the User Equipment shall delete the stored TMSI, LAI, CKSN, P-TMSI, P-TMSI signature, PS CKSN and RAI and start T3302.

3) When the T3302 expire, a new combined PS attach procedure shall be initiated.

GMM cause codes that can be selected are:
'IMSI unknown in HLR'
'UE identity cannot be derived by the network'
'Network failure'
'Congestion'
'retry upon entry into a new cell'
'Semantically incorrect message'
'Invalid mandatory information'
'Message type non-existent or not implemented'
'Message type not compatible with the protocol state'
'Information element non-existent or not implemented'
'Conditional IE error'
'Message not compatible with the protocol state'
'Protocol error, unspecified'

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.8.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.2.2.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Switch off on button Yes/No

Test procedure

The UE initiates a combined PS attach procedure (attempt counter zero).

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter one) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter two) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter three) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter four) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE shall not perform a new successful attach procedure after 15 seconds.

The UE initiates a combined PS attach procedure with attempt counter zero after T3302 expires without P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 10 minutes.

T3311; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
4	<-		ATTACH REJECT	Arbitrary chosen GMM cause T3302 with value 10 min.
5	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
6	SS			The SS verifies that the time between the attach reject and attach request is T3311
7	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
8	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
9	SS			The SS verifies that the time between the attach reject and attach request is T3311
10	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
11	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
12	SS			The SS verifies that the time between the attach reject and attach request is T3311
13	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
14	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
15	SS			The SS verifies that the time between the attach reject and attach request is T3311
16	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
17 (optional step)	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Location Update Procedure may be initiated from the UE. Parameter mobile identity is IMSI.
20	<-		PAGING TYPE1	Paging order is for PS services. Mobile identity = P-TMSI-1
21	UE			No response from the UE to the request. This is checked for 10seconds.
21a			Void	
22	SS			The SS verifies that the UE does not attempt to attach for T3302 .
23	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' 'PS attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
23a	<-		AUTHENTICATION AND CIPHERING REQUEST	
23b	->		AUTHENTICATION AND CIPHERING RESPONSE	
23c	SS			The SS starts integrity protection.
24	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity P-TMSI-1 P-TMSI signature Mobile identity = TMSI-1 Routing area identity = RAI-1
25	->		ATTACH COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
26		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services..
27		->	RRC CONNECTION REQUEST	
28		<-	RRC CONNECTION SETUP	
29		->	RRC CONNECTION SETUP COMPLETE	
30		->	PAGING RESPONSE	Mobile identity = TMSI-1
31		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
32		->	RRC CONNECTION RELEASE COMPLETE	
33		<-	PAGING TYPE1	Mobile identity = P-TMSI-1
33a		->	RRC CONNECTION REQUEST	
33b		<-	RRC CONNECTION SETUP	
33c		->	RRC CONNECTION SETUP COMPLETE	
34		->	SERVICE REQUEST	Service type = "paging response"
34a		<-	RRC CONNECTION RELEASE	
34b		->	RRC CONNECTION RELEASE COMPLETE	
35	UE			The UE is switched off or power is removed (see ICS).
36		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
37	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.2.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the conditions described below.

Case1) A combined PS attach procedure is rejected with the attempt counter less than five

At step 5, 8, 11 and 14, when the timer T3311 timeout has occurred, UE shall:

- repeat the combined PS attach procedure.

Case2) A combined PS attach procedure is rejected with the attempt counter five

At step21, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

Case3) The T3302 expires

At step23, UE shall:

- re-initiate the new combined PS attach procedure.

At step30, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step34, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.9 Combined PS attach / abnormal cases / PS detach procedure collision

12.2.2.9.1 Definition

12.2.2.9.2 Conformance requirement

1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.

2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall ignore the combined PS detach procedure and continue with the combined PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.2.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI. UE is Idle Updated.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
Re-attach automatically when the network commands a detach with no cause value Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (any cause except re-attach). The UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (cause re-attach). The UE shall ignore the combined PS detach procedure and continue with the combined PS attach. CS services are also possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
5	<-		DETACH REQUEST	Detach type = 're-attach not required'
6	->		DETACH ACCEPT	
7			(void)	
8			(void)	
9	UE			The UE is attached by MMI or AT command if the UE does not re-attach automatically upon receiving a network initiated detach with no cause value, (see IXIT).
10	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
11	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
12	<-		DETACH REQUEST	Detach type = 're-attach required'
13	UE			The UE ignores the DETACH REQUEST message and continue with the attach procedure
14	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-1
15	->		ATTACH COMPLETE	
16	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
17	->		RRC CONNECTION REQUEST	
18	<-		RRC CONNECTION SETUP	
19	->		RRC CONNECTION SETUP COMPLETE	
20	->		PAGING RESPONSE	Mobile identity = TMSI-2
21	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
22	->		RRC CONNECTION RELEASE COMPLETE	
23	<-		PAGING TYPE1	Paging order is for PS services. Mobile identity = P-TMSI-2
23a	->		RRC CONNECTION REQUEST	
23b	<-		RRC CONNECTION SETUP	
23c	->		RRC CONNECTION SETUP COMPLETE	
24	->		SERVICE REQUEST	Service type = "paging response"
24a	<-		RRC CONNECTION RELEASE	
24b	->		RRC CONNECTION RELEASE COMPLETE	
25	UE			The UE is switched off or power is removed (see ICS).
26	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
27	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.2.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Detach type described below.

Case1) Detach type is not re-attach

At step6, UE shall:

- respond to DETACH REQUEST message by sending DETACH ACCEPT message.

Case2) Detach type is re-attach

At step13, UE shall:

- ignore the PS detach procedure.

At step15, UE shall:

- send the ATTACH COMPLETE message.

At step20, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step24, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.3 PS detach procedure

12.3.1 UE initiated PS detach procedure

12.3.1.1 PS detach / power off / accepted

12.3.1.1.1 Definition

12.3.1.1.2 Conformance requirement

The UE detaches the IMSI for PS services if the UE is switched off.

Reference

3GPP TS 24.008 clause 4.7.4.1

12.3.1.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set o attach to the PS services only (see ICS). If that is not supported by the UE, goto step 8.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE is switched off (see ICS).
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'power switched off, PS detach'
7a				The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
8	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 7a.

Specific message contents

None.

12.3.1.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE is switched off, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, PS detach'.

12.3.1.2 PS detach / accepted

12.3.1.2.1 Definition

12.3.1.2.2 Conformance requirement

1) The GPRS detach procedure is initiated by the UE by sending a DETACH REQUEST message. The detach type information element may indicate "GPRS detach with switching off", "GPRS detach without switching off", "IMSI detach", "GPRS/IMSI detach with switching off" or "GPRS/IMSI detach without switching off".

   The UE shall include the P-TMSI in the DETACH REQUEST message. The UE shall also include a valid P-TMSI signature, if available.

2) Upon completion of the detach procedure, the used P-TMSI signature shall be deleted.

Reference

3GPP TS 24.008 clause 4.7.4.1.1

3GPP TS 24.008 clause 4.7.1.3

12.3.1.2.3 Test purpose

To test the behaviour of the UE for the detach procedure, including treatment of P-TMSI signature.

12.3.1.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE PS Release Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to the PS services only (see ICS). If that is not supported by the UE, goto step 18.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
5			(void)	
6	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach"
7	->		DETACH REQUEST	Detach type = 'normal detach, PS detach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
7a	SS			The SS starts ciphering and integrity protection.
8	<-		DETACH ACCEPT	
8a	SS			The SS releases the RRC connection.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
11	UE			The UE initiates an attach by MMI or AT commands
12	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
12a	SS			The SS starts ciphering and integrity protection.
13	<-		ATTACH ACCEPT	No new mobile identity assigned Attach result = 'PS only attached' Routing area identity = RAI-1
14	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
15	->		DETACH REQUEST	Detach type = 'normal detach, PS detach' Mobile identity = P-TMSI-1
16	<-		DETACH ACCEPT	
17			(void)	
18	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 16.

Specific message contents

None.

12.3.1.2.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, UE shall:

- send the DETACH REQUEST message (without power off) to SS with mobile identity P-TMSI-1 and P-TMSI-1 signature.

At step10, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step 12, UE shall

- initiate ATTACH REQUEST message without P-TMSI signature IE.

At step 15, UE shall:

- send the DETACH REQUEST message (without power off) to SS with mobile identity P-TMSI-1 and without P-TMSI-1 signature.

12.3.1.3 PS detach / abnormal cases / attempt counter check / procedure timeout

12.3.1.3.1 Definition

12.3.1.3.2 Conformance requirement

1) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter less than five, the User Equipment shall repeat the PS detach procedure.

2) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter five, the User Equipment shall not repeat the procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.3.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.3.1.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE initiates a PS detach procedure (attempt counter zero). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter one) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter two) after T3321expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter three) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter four) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure with attempt counter five (after T3321expires). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

At T3321 timeout in the UE, the UE then deletes the logical link since the retransmissions have been repeated four times.

The UE performs a new PS attach procedure.

T3321; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 25.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1
5	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
6	->		DETACH REQUEST	Detach type = 'normal detach, PS detach'
7	SS			No response is given from the SS.
8	SS			The SS verifies that the time between the detach requests is 15 seconds
9	->		DETACH REQUEST	Detach type = 'normal detach, PS detach'
10	SS			No response is given from the SS.
11	SS			The SS verifies that the time between the detach requests is 15 seconds
12	->		DETACH REQUEST	Detach type = 'normal detach, PS detach'
13	SS			No response is given from the SS.
14	SS			The SS verifies that the time between the detach requests is 15 seconds
15	->		DETACH REQUEST	Detach type = 'normal detach, PS detach'
16	SS			No response is given from the SS.
17	SS			The SS verifies that the time between the detach requests is 15 seconds
18	->		DETACH REQUEST	Detach type = 'normal detach, PS detach'
19	SS			No response is given from the SS within 40 seconds and SS verifies that the UE will not send a DETACH REQUEST again.
20	UE			Initialte a PS attach
21	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c	SS			The SS starts integrity protection.
22	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1
23				UE is switched off or power is removed (see ICS)
24	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
24a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
25	UE			The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 24.

Specific message contents

None.

12.3.1.3.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attachÈprocedure with the information elements specified in the above Expected Sequence.

At step9, 12, 15 and 18, when a T3321 expires with the attempt counter less than five, UE shall:

- initiate the new PS detach procedure.

At step19, when the attempt counter is greater than or equal to five, UE shall:

- not repeat the PS detach procedure.

At step20, UE shall:

- initiate the PS attachÈprocedure.

12.3.1.4 PS detach / abnormal cases / GMM common procedure collision

12.3.1.4.1 Definition

12.3.1.4.2 Conformance requirement

When any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off", the UE shall ignore the GMM common message.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.4.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode C	Yes/No
UE operation mode A	Yes/No (only if mode C not supported)

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The following test procedure is repeated for sequence counter k = 1,2,3:

The UE performs a PS attach.

The UE initiates a PS detach. The SS initiates a P-TMSI REALLOCATION COMMAND message (k=1), a GMM STATUS message (k=2) and a GMM INFORMATION message (k=3). The UE shall ignore the GMM common messages and continue with the PS detach procedure. The sending of the P-TMSI REALLOCATION COMMAND message (k = 1), the GMM STATUS message (k = 2), the GMM INFORMATION message (k = 3) and the DETACH ACCEPT message shall be completed within Timer T3321 -10%.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

The test sequence is repeated for k = 1 Ö 3

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a detach (without power off) by MMI or AT command.
7	->		DETACH REQUEST	Detach type = 'normal detach, PS detach'
8A (k=1)	SS			The SS sends a P-TMSI REALLOCATION COMMAND message
9A (k=1)	<-		P-TMSI REALLOCATION COMMAND	
10A (k=1)	UE			The UE ignores the message. This is verified for 10 seconds.
8B (k=2)	SS			The SS sends a GMM STATUS message
9B (k=2)	<-		GMM STATUS	
10B (k=2)	UE			The UE ignores the message. This is verified for 10 seconds.
8C (k=3)	SS			The SS sends a GMM INFORMATION message
9C (k=3)	<-		GMM INFORMATION	
10C (k=3)	UE			The UE ignores the message which is verified for 10 seconds or if GMM INFORMATION message not implemented, sends a GMM STATUS with GMM Cause 'Message type non-existent or not implemented'.
11	<-		DETACH ACCEPT	The SS responds to the DETACH REQUEST
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds.

Note: Steps 8x, 9x, 10x and 11 shall be completed within Timer T3321 -10%.

Specific message contents

None.

12.3.1.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step 10A, 10B, 10C and 13, when any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off, UE shall:

- ignore any of the GMM common message.

12.3.1.5 PS detach / power off / accepted / PS/IMSI detach

12.3.1.5.1 Definition

12.3.1.5.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.5.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. The UE then deletes the logical link.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is setto attach to both the PS and non-PS services (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE is switched off (see ICS).
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'power switched off, combined PS / IMSI detach'
7a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.1.5.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE is switched off, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, combined PS / IMSI detach'.

12.3.1.6 PS detach / accepted / PS/IMSI detach

12.3.1.6.1 Definition

12.3.1.6.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.6.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.6.4 Method of test

Initial condition

System Simulator:

- One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No
  User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. When the UE receives the DETACH ACCEPT, the UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to both the PS and non-PS services (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE initiates a detach (without power off) by MMI or AT command (see ICS).
6a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'normal detach, combined PS / IMSI detach'
8	<-		DETACH ACCEPT	
8a	SS			The SS releases the RRC connection.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
11	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
12	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.6.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step12, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.3.1.7 PS detach / accepted / IMSI detach

12.3.1.7.1 Definition

12.3.1.7.2 Conformance requirement

The UE shall detach for CS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.7.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.7.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

- The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No
  User requested non-PS detached Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE performs an PS detach (for non-PS services).

CS services are not possible.

The UE attach for non-PS services by a routing area update procedure and CS services are again possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a detach for non-PS services (without power off) (see ICS).
7	->		DETACH REQUEST	Detach type = 'normal detach, IMSI detach'
8	<-		DETACH ACCEPT	
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
9a	->		RRC CONNECTION REQUEST	
9b	<-		RRC CONNECTION SETUP	
9c	->		RRC CONNECTION SETUP COMPLETE	
10	->		SERVICE REQUEST	service type = "paging response"
10a	<-		RRC CONNECTION RELEASE	
10b	->		RRC CONNECTION RELEASE COMPLETE	
11	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging order is for RRC connection.
12	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
13	UE			The UE initiates an attach for non-PS services by a RA update procedure (see ICS).
14	->		ROUTING AREA UPDATE REQUEST	Update type = "Combined RA/LA updating with IMSI attach" Old Routing area identity = RAI-1
15	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated'' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
16	->		ROUTING AREA UPDATE COMPLETE	
17	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
18	->		RRC CONNECTION REQUEST	
19	<-		RRC CONNECTION SETUP	
20	->		RRC CONNECTION SETUP COMPLETE	
21	->		PAGING RESPONSE	Mobile identity = TMSI-1
22	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
23	->		RRC CONNECTION RELEASE COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
24	UE			The UE is switched off or power is removed (see ICS).
25	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
26	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.1.7.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, after the detach procedure (Detach type = 'normal detach, IMSI detach') is completed, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step12, after the detach procedure (Detach type = 'normal detach, IMSI detach') is completed, UE shall:

- not respond to the paging message for CS.

At step21, after the routing area updating procedure (Update type = 'Combined RA/LA updating') is completed, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.1.8 PS detach / abnormal cases / change of cell into new routing area

12.3.1.8.1 Definition

12.3.1.8.2 Conformance requirement

When a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, the UE shall abort the PS detach procedure and re-initiate it after the routing area update procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

Sufficient time is given for the UE to identify the neighbour cell before the UE is triggered to initiate a PS detach procedure. The DETACH ACCEPT message is delayed from the SS.

The UE performs a cell reselection to a cell in a new routing area and performs a routing area update procedure.

The UE shall re-initiate a PS detach procedure when the routing area update procedure is finished.

The UE deletes the logical link.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
6a		SS		SS waits 30 sec.
7	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
8		->	DETACH REQUEST	Detach type = 'normal detach, combined PS / IMSI detach'
9		SS		No response to the DETACH REQUEST message is given by the SS
				The following messages are sent and shall be received on cell B.
10		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note) Cell B is preferred by the UE.
11	UE			The UE performs a RA update in the new cell.
12		->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE omitted
13		<-	ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-4
14		->	ROUTING AREA UPDATE COMPLETE	
15		->	DETACH REQUEST	The detach is automatically re-attempted. Detach type = 'normal detach, combined PS / IMSI detach'
16		<-	DETACH ACCEPT	
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.3.1.8.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step12, when a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, UE shall:

- abort a PS detach procedure.
- perform routing area updating procedure.

At step15, when the UE completes a routing area updating procedure, UE shall:

- re-initiate the PS detach procedure.

12.3.1.9 PS detach / abnormal cases / PS detach procedure collision

12.3.1.9.1 Definition

12.3.1.9.2 Conformance requirement

When a DETACH REQUEST is received by the UE while waiting for a DETACH ACCEPT message, the UE shall answer the network initiated PS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE initiates a PS detach. The SS does not answer the detach procedure, but initiates a detach procedure (cause re-attach not required). The UE shall continue with the network initiated detach procedure.

The UE deletes the logical link.

PS and CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A(see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
7	->		DETACH REQUEST	Detach type = 'normal detach, combined PS / IMSI detach'
8	<-		DETACH REQUEST	Detach type = 're-attach not required'
9	->		DETACH ACCEPT	The UE answers the network initiated detach.
10	<-		DETACH ACCEPT	The SS answers the UE initiated detach.
11	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
12	UE			No response from the UE to the request. This is checked for 10 seconds.
13	<-		PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services.
14	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE receives DETACH REQUEST message from SS before UE initiated PS detach procedure has been completed, UE shall:

- send the DETACH ACCEPT message to SS.

At step12, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step14, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.3.2 Network initiated PS detach procedure

12.3.2.1 PS detach / re-attach not required / accepted

12.3.2.1.1 Definition

12.3.2.1.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The SS sends a DETACH REQUEST message to the UE. The UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS is set in network operation mode II.
2	UE			The UE is set to either attach to PS only or both the PS and non-PS services (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
7		SS		The SS initiates a PS detach.
8	<-		DETACH REQUEST	Detach type = 're-attach not required' GMM cause = ëGPRS services and non-GPRS services not allowedí
9	->		DETACH ACCEPT	
9a		SS		The SS releases the RRC connection.
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.

Specific message contents

None.

12.3.2.1.5 Test requirements

At step 3a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE receives the DETACH REQUEST message from SS and the detach type IE indicates 're-attach not required', the UE shall:

- send DETACH ACCEPT message to SS.

At step11, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

12.3.2.2 PS detach / rejected / IMSI invalid / PS services not allowed

12.3.2.2.1 Definition

12.3.2.2.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause 'PS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network performs a PS detach procedure with the cause 'PS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.2.3 Test purpose

To test the behaviour of the UE if the network orders a PS detach procedure with the cause 'PS services not allowed' (no valid PS-subscription for the IMSI).

12.3.2.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode II.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS performs a detach with the cause value 'PS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 22.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
7		<-	DETACH REQUEST	Detach type = 're-attach not required' Cause = 'PS services not allowed'
8		->	DETACH ACCEPT	
				The following messages are sent and shall be received on cell B.
9		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
10	UE			Cell B is preferred by the UE. Step 11 is only performed for UE Operation Mode A.
11	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
12				The UE initiates an attach automatically (see ICS), by MMI or AT commands.
13	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
14	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
15	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
15a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
16		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
16a		<-	AUTHENTICATION AND CIPHERING REQUEST	
16b		->	AUTHENTICATION AND CIPHERING RESPONSE	

16c	SS		The SS starts integrity protection.
17	<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
18	->	ATTACH COMPLETE	
19	UE		The UE is switched off or power is removed (see ICS).
20	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
20a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
21			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
22	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 3 to step 18.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.3.2.2.5 Test requirements

At step4 and 15, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'PS services not allowed') from SS, UE shall:

- send DETACH ACCEPT message.

At step13, UE shall:

- not perform PS attach procedure.

12.3.2.3 PS detach / IMSI detach / accepted

12.3.2.3.1 Definition

12.3.2.3.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.3.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE. The UE then performs an IMSI detach (detach for non-PS services).

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

The UE attach for non-PS services by a routing area update procedure. Both PS and CS services are possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = IMSI Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	SS			The SS initiates a detach for non-PS services.
7	<-		DETACH REQUEST	Detach type = 'IMSI detach'
8	->		DETACH ACCEPT	
9	UE			The UE initiates an attach for non-PS services (see ICS).
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updating' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
12	->		ROUTING AREA UPDATE COMPLETE	
13	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
14	->		RRC CONNECTION REQUEST	
15	<-		RRC CONNECTION SETUP	
16	->		RRC CONNECTION SETUP COMPLETE	
17	->		PAGING RESPONSE	Mobile identity = TMSI-1
18	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
19	->		RRC CONNECTION RELEASE COMPLETE	
20	UE			The UE is switched off or power is removed (see ICS).
21	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
22	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.2.3.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives the DETACH REQUEST message with Detach type = 'IMSI detach', UE shall;

- send the DETACH ACCEPT message to SS.

At step10, after the completion of the detach procedure, UE shall;

- perform combined routing area updating procedure.

At step17, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.2.4 PS detach / re-attach requested / accepted

12.3.2.4.1 Definition

12.3.2.4.2 Conformance requirement

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach required", the UE shall deactivate the PDP contexts and deactivate the logical link(s), if any. The UE shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The UE shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure. The UE should also activate PDP context(s) to replace any previously active PDP contexts.

A GPRS UE operating in UE operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

Reference

3GPP TS 24.008 clause 4.7.4.2.2.

12.3.2.4.3 Test purpose

To test the behaviour of the UE for the detach procedure in case automatic re-attach.

12.3.2.4.4 Method of test

Initial condition

System Simulator:

One cell in operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE with cause re-attach. The UE then detaches for PS services. The UE automatically performs a new combined PS attach procedure with Attach Type ìGPRS attach while IMSI attachedî (for PS services) and PS and CS services are again possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = TMSI-1 Routing area identity = RAI-1 No new P-TMSI and P-TMSI signature assigned
5	->		ATTACH COMPLETE	
6	SS			The SS initiates a detach with re-attach.
7	<-		DETACH REQUEST	Detach type = 're-attach required', GMM cause omitted
8	->		DETACH ACCEPT	
9	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
10	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = TMSI-1 ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
11	->		ATTACH COMPLETE	
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
12a	->		RRC CONNECTION REQUEST	
12b	<-		RRC CONNECTION SETUP	
12c	->		RRC CONNECTION SETUP COMPLETE	
13	->		SERVICE REQUEST	service type = "paging response"
13a	<-		RRC CONNECTION RELEASE	
13b	->		RRC CONNECTION RELEASE COMPLETE	
14	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
15	->		RRC CONNECTION REQUEST	
16	<-		RRC CONNECTION SETUP	
17	->		RRC CONNECTION SETUP COMPLETE	
18	->		PAGING RESPONSE	Mobile identity = TMSI-1
19	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
20	->		RRC CONNECTION RELEASE COMPLETE	
21	UE			The UE is switched off or power is removed (see ICS).
22	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
23	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.2.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives DETACH REQUEST message with Detach type = 're-attach required', UE shall;

- send DETACH ACCEPT message to SS.

At step9, after UE completed PS detach procedure with Detach type = 're-attach required', UE shall:

- initiate the combined PS attach procedure with an Attach Type of either 'Combined PS / IMSI attach' or ëGPRS attach while IMSI attachedí.

At step13, when the UE receives the paging message for PS domain, UE shall;

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step18, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.2.5 PS detach / rejected / location area not allowed

12.3.2.5.1 Definition

12.3.2.5.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete any RAI or LAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number
   .

   1.3 store the LAI in the list of the 'forbidden location areas for regional provision of service'.

   1.4 delete any TMSI, LAI and ciphering key sequence number if the UE is IMSI attached and if no RRC connection exists or if the UE is operating in UE operation mode A and an RRC connection exists when the RRC connection is subsequently released.

2) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:

   2.1 perform combined PS attach when a new location area is entered.

   2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.5.3 Test purpose

To test the behaviour of the UE if the network orders the PS detach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.3.2.5.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC2 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
All cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
PS attach attempted automatically by outstanding request Yes/No

Test procedure

The SS orders a PS detach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell ". Set the cell type of cell C to the "Non-Suitable cell ". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-2
6		->	ATTACH COMPLETE	
7		<-	DETACH REQUEST	Detach type = 're-attach not required' Cause 'Location Area not allowed'
8		->	DETACH ACCEPT	
9	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
10		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
11	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
12		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds
				The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			The UE initiates an attach automatically, by MMI or by AT command.
17	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
18	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
19		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
20	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
22				No response from the UE to the request. This is checked for 10 seconds

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell C.
23		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
24	UE			Cell C is preferred by the UE. Step 25 and 26 are only performed by an UE which will not initiate a PS attach automatically (see ICS)
25 conditional	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI.
26 conditional	UE			The UE initiates an attach by MMI or AT command.
27	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
28	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-6
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-1
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
37	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
38	->		RRC CONNECTION REQUEST	
39	<-		RRC CONNECTION SETUP	
40	->		RRC CONNECTION SETUP COMPLETE	
41	->		SERVICE REQUEST	service type = "paging response"
42	<-		RRC CONNECTION RELEASE	
43	->		RRC CONNECTION RELEASE COMPLETE	
44	UE			The UE is switched off or power is removed (see ICS).
45	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
45a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B.
46	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
47	UE			Cell B is preferred by the UE. The UE is powered up or switched on and initiates an attach (see ICS).

Step	Direction		Message	Comments
	UE	SS		
				Step 48 is only performed for non-auto attach UE.
48	UE		Registration on CS	See TS34.108 Parameter mobile identity is TMSI-1
49	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
50	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-6 TMSI status = valid TMSI available or IE not present
51	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-7
52	->		ATTACH COMPLETE	
53	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
54	->		RRC CONNECTION REQUEST	
55	<-		RRC CONNECTION SETUP	
56	->		RRC CONNECTION SETUP COMPLETE	
57	->		PAGING RESPONSE	Mobile identity = TMSI-2
58	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
59	->		RRC CONNECTION RELEASE COMPLETE	
60	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
61	->		RRC CONNECTION REQUEST	
62	<-		RRC CONNECTION SETUP	
63	->		RRC CONNECTION SETUP COMPLETE	
64	->		SERVICE REQUEST	service type = "paging response"
65	<-		RRC CONNECTION RELEASE	
66	->		RRC CONNECTION RELEASE COMPLETE	
67	UE			The UE is switched off or power is removed (see ICS).
68	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
69	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.3.2.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receive the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'Location Area not allowed') from SS, UE shall:

- send the DETACH ACCEPT message.

UE shall perform the following action depending on UE location.

1) UE is in the same location area.

At step9 and 18, UE shall:

- not perform location updating procedure.

At step11 and 20, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 22, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step17, UE shall;

- not perform PS attach procedure.

2) UE is in the new location area.

At step27, UE shall;

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step41, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step50, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence

At step57, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step64, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.3.2.6 PS detach / rejected / No Suitable Cells In Location Area

12.3.2.6.1 Definition

12.3.2.6.2 Conformance requirement

1. If the network performs a PS detach procedure with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   1.1 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.2 store the LA in the 'forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.6.3 Test purpose

To test the behaviour of the UE if the network sends the DETACH REQUEST message with the cause 'No Suitable Cells In Location Area'.

12.3.2.6.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode I.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS sends a DETACH REQUEST message with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall not perform combined PS attach while in the same location area on the same PLMN. The SS checks that the UE shall perform PS attach when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		DETACH REQUEST	Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area'
7	->		DETACH ACCEPT	
				The following message are sent and shall be received on cell B.
8	UE			The UE initiates an attach automatically, by MMI or by AT command.
9	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
10	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-□
11	->		ATTACH COMPLETE	
12	UE			The UE is switched off or power is removed (see ICS).
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.3.2.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the PS attach procedure.

12.3.2.7 PS detach / rejected / Roaming not allowed in this location area

12.3.2.7.1 Definition

12.3.2.7.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause 'Roaming area not allowed in this location area' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the GPRS update status to GU3 ROAMING NOT ALLOWED.

   1.3 reset the attach attempt counter.

   1.4 store the LAI in the list of "forbidden location areas for roaming".

   1.5 perform a PLMN selection.

2) If the UE is IMSI attached via MM procedures, the UE shall in addition:

   2.1 delete any TMSI, LAI and ciphering key sequence number.

   2.2 reset the location update attempt counter.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.7.3 Test purpose

To test the behaviour of the UE if the network orders the PS detach procedure with the cause ' Roaming area not allowed in this location area '.

12.3.2.7.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC2 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
All cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS orders a PS detach with the cause value ' Roaming area not allowed in this location area '. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-2
6		->	ATTACH COMPLETE	
7		<-	DETACH REQUEST	Detach type = 're-attach not required' Cause 'Roaming not allowed in this location area '
8		->	DETACH ACCEPT	
9	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
10		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
11	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
12		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds
		SS		The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			The UE initiates an attach automatically, by MMI or by AT command.
17	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
18	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
19		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
20	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.

Step	Direction		Message	Comments
	UE	SS		
22				No response from the UE to the request. This is checked for 10 seconds
				The following messages are sent and shall be received on cell C.
23		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
24	UE			Cell C is preferred by the UE. Step 25 is only performed for non-auto attach UE.
25	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI.
26	UE			The UE initiates an attach automatically (See ICS), by MMI or AT command.
27	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
28	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-6
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-1
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
37	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
38	->		RRC CONNECTION REQUEST	
39	<-		RRC CONNECTION SETUP	
40	->		RRC CONNECTION SETUP COMPLETE	
41	->		SERVICE REQUEST	service type = "paging response"
42	<-		RRC CONNECTION RELEASE	
43	->		RRC CONNECTION RELEASE COMPLETE	
44	UE			The UE is switched off or power is removed (see ICS).
45	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
45a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B.
46	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
47	UE			Cell B is preferred by the UE. The UE is powered up or switched on and initiates an attach (see ICS).

Step	Direction		Message	Comments
	UE	SS		
				Step 48 is only performed for non-auto attach UE.
48	UE		Registration on CS	See TS34.108 Parameter mobile identity is TMSI-1
49	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
50	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-6 TMSI status = valid TMSI available or IE not present
51	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-7
52	->		ATTACH COMPLETE	
53	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
54	->		RRC CONNECTION REQUEST	
55	<-		RRC CONNECTION SETUP	
56	->		RRC CONNECTION SETUP COMPLETE	
57	->		PAGING RESPONSE	Mobile identity = TMSI-2
58	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
59	->		RRC CONNECTION RELEASE COMPLETE	
60	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
61	->		RRC CONNECTION REQUEST	
62	<-		RRC CONNECTION SETUP	
63	->		RRC CONNECTION SETUP COMPLETE	
64	->		SERVICE REQUEST	service type = "paging response"
65	<-		RRC CONNECTION RELEASE	
66	->		RRC CONNECTION RELEASE COMPLETE	
67	UE			The UE is switched off or power is removed (see ICS).
68	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
69	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.3.2.7.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receive the DETACH REQUEST message (Detach type = 're-attach not required', Cause = ' Roaming not allowed in this location area') from SS, UE shall:

- send the DETACH ACCEPT message.

UE shall perform the following action depending on UE location.

1) UE is in the same location area.

At step9 and 18, UE shall:

- not perform location updating procedure.

At step11 and 20, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 22, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step17, UE shall;

- not perform PS attach procedure.

2) UE is in the new location area.

At step27, UE shall;

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step41, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step50, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence

At step57, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step64, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.3.2.8 PS detach / rejected / PS services not allowed in this PLMN

12.3.2.8.1 Definition

12.3.2.8.2 Conformance requirement

If the network performs a PS detach procedure with the cause ' PS services not allowed in this PLMN ', the UE:

1. shall delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored, shall set the PS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

2. shall store the PLMN identity in the "forbidden PLMNs for PS service" list.

If the network performs a PS detach procedure with the cause ' PS services not allowed in this PLMN ', the UE operating in UE operation mode A in network operation mode I:

1. shall set the timer T3212 to its initial value and restart it, if it is not already running.
2. is still IMSI attached for CS services in the network.

Reference(s):

3GPP TS 24.008 subclause 4.7.4.2.2

12.3.2.8.3 Test purpose

Test purpose for Test procedure1

To test the behaviour of the UE if the network initiates a PS detach procedure with the cause "PS services not allowed in this PLMN" (for Conformance requirement1, 2).

Test purpose for Test procedure2

To test the behaviour of the UE operating in UE operation mode A in network operation mode I if the network initiates a PS detach procedure with the cause "PS services not allowed in this PLMN" (for Conformance requirement3, 4).

12.3.2.8.4 Method of test

12.3.2.8.4.1 Test procedure1

Initial conditions

System Simulator:

Two cells cellA in MCC1/MNC1/LAC1/RAC1, cellB in MCC1/MNC2/LAC2/RAC1.
Both two cells are operating in network operation mode II.
The PLMN contains Cell B is equivalent to the PLMN that contains Cell A.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statement(s)

- Support of PS service Yes/No.
- UE operation mode A Yes/No
- UE operation mode C Yes/No (only if mode A not supported)..
- Switch off on button Yes/No.
- Automatic PS attach procedure at switch on or power on Yes/No.

Test procedure

Two cells are configured.

Cell A transmits with higher power so that the UE attempts an attach procedure to cell A.

The UE initiates a PS attach procedure.

The SS sends a PS detach with the cause "PS services not allowed in this PLMN".

The SS verifies that the UE does not perform a periodic ROUTING AREA UPDATE procedure in this PLMN after the timer T3312 is expired and does not respond a paging for PS services.

Cell B transmits with high power so that the UE attempts an attach procedure to cell B.

The UE initiates a PS attach procedure.

The SS verifies that the UE performs a periodic ROUTING AREA UPDATE procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A or C (see ICS).
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell "
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5	<-		AUTHENTICATION AND CIPHERING REQUEST	
6	->		AUTHENTICATION AND CIPHERING RESPONSE	
7		SS		The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = ' PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 Equivalent PLMNs = MCC1,MNC2 T3312 = 6minutes
9	->		ATTACH COMPLETE	
10	<-		DETACH REQUEST	Detach Type = 're-attach not required' Cause = 'PS services not allowed in this PLMN'
11	->		DETACH ACCEPT	
12		SS		The SS releases the RRC connection.
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	UE			The SS verifies that the UE does not attempt to access the network for T3312.
				The following messages are sent and shall be received on cell B.
16		SS		Set the cell type of cell A to the "Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell " (see note)
17				Cell B is preferred by the UE. Step 18 is only performed for non-auto attach UE.
18			Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
19				The UE initiates an attach automatically (See ICS), by MMI or AT command.
20	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
21	<-		AUTHENTICATION AND CIPHERING REQUEST	
22	->		AUTHENTICATION AND CIPHERING RESPONSE	
23		SS		The SS starts integrity protection.
24	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-9 Equivalent PLMNs = MCC1,MNC1 T3312 = 6minutes

25	->	ATTACH COMPLETE	
26	SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
27	->	ROUTING AREA UPDATING REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-9
28	<-	ROUTING AREA UPDATING ACCEPT	No new mobile identity assigned. P-TMSI and TMSI not included. Update result = 'RA updated' Equivalent PLMNs = MCC1,MNC1
29	UE		The UE is switched off or power is removed (see ICS).
30	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off,
31	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.3.2.8.4.2 Test procedure2

Initial conditions

System Simulator:

One cell is operating in network operation mode I: MCC1/MNC1/LAC1/RAC1.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statement(s)

- Support of PS service Yes/No.
- UE operation mode A Yes/No
- Switch off on button Yes/No.
- Automatic PS attach procedure at switch on or power on Yes/No.

Test procedure

One cell is configured.

The UE initiates a combined attach procedure.

The SS sends a PS detach with the cause "PS services not allowed in this PLMN".

The SS verifies that the UE performs a periodic location area updating procedure after the timer T3212 is expired.

The SS verifies that the UE responds a paging for CS services.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4	<-		AUTHENTICATION AND CIPHERING REQUEST	
5	->		AUTHENTICATION AND CIPHERING RESPONSE	
6	SS			The SS starts integrity protection.
7	<-		ATTACH ACCEPT	Attach result = ' Combined PS/IMSI attached ' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
8	->		ATTACH COMPLETE	
9	<-		DETACH REQUEST	Detach Type = 're-attach not required' Cause = 'PS services not allowed in this PLMN'
10	->		DETACH ACCEPT	
11				The SS releases the RRC connection
12	SS			The SS waits for the UE to expiry the timer T3212.
13	UE		Registration on CS	The UE performs a location update procedure. See TS 34.108 Mobile identity = IMSI
14	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call"
15	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
16	->		PAGING RESPONSE	Mobile identity = IMSI
17				The SS releases the RRC connection
18	UE			The UE is switched off or power is removed (see ICS).
19	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off'
20	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.2.8.5 Test Requirement

12.3.2.8.5.1 Test Requirement for Test procedure1

At step4, when the UE is powered up or switched on, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step11, when the UE receives DETACH REQUEST message with the cause "PS services not allowed in this PLMN", the UE shall:

- send DETACH ACCEPT message.

At step13, when the UE receives the paging for PS services with "Mobile identity = P-TMSI-2", the UE shall;

- not respond to the paging for PS services.

At step14, when the time T3312 is expired, the UE shall:

- not attempt to access the network.

At step20, when the UE enters the different cell with the equivalent PLMN, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step27, when the time T3312 is expired, the UE shall:

- initiate the periodic routing area updating procedure with the information elements specified in the above Expected Sequence.

12.3.2.8.5.2 Test Requirement for Test procedure2

At step3, when the UE is powered up or switched on, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, when the UE receives DETACH REQUEST message with cause "PS services not allowed in this PLMN ", the UE shall:

- send DETACH ACCEPT message.

At step12, while the SS wait for the timer T3312 to expire, the UE shall:

- not perform the periodic location area updating procedure.

At step13, when the T3212 timer is expired, the UE shall:

- initiate the periodic location area updating procedure.

At step16, when the UE receives the paging for CS services with "Mobile identity = IMSI", the UE shall;

- respond to the paging for CS services by sending the PAGING RESPONSE message.

12.4 Routing area updating procedure

This procedure is used to update the actual routing area of an UE in the network.

12.4.1 Normal routing area updating

The routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A or C that are IMSI attached for PS services only.

12.4.1.1a Routing area updating / accepted

12.4.1.1a.1 Definition

12.4.1.1a.2 Conformance requirement

1) If the network accepts the routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

2) If the network accepts the routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

3) The routing area updating procedure shall also be used by a UE which is attached for PS services if a new PLMN is entered.

Reference

3GPP TS 24.008 clause 4.7.5, 4.7.5.1.

12.4.1.1a.3 Test purpose

To test the behaviour of the UE if the network accepts the routing area updating procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is reallocated.

2) Old P-TMSI / P-TMSI signature is not changed.

To test the behaviour of the UE if the UE enters the new PLMN.

12.4.1.1a.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
All three cells are operating in network operation mode II.
The PLMN contains cell C is equivalent to the PLMN that contains cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.

2) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS accepts the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the P-TMSI.

3) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
2	UE			The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 32.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 Equivalent PLMN: MCC = 2, MNC = 1
6	->		ATTACH COMPLETE	
6a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
8a		SS		The SS starts integrity protection.
9	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 Equivalent PLMNs = MCC2,MNC1
10	->		ROUTING AREA UPDATE COMPLETE	
11			Void	
11b			Void	
11c		SS		The SS releases the RRC connection.
11d	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.

Step	Direction		Message	Comments
	UE	SS		
11e		SS		SS verifies that the UE transmits an RRC CONNECTION REQUEST message. SS will reject this request. The IE "Establishment cause" is not checked.
12		<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
13		UE		No response from the UE to the request. This is checked for 10 seconds.
14		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
15		UE		Cell A is preferred by the UE.
15a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
16		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4
16a		SS		The SS starts integrity protection.
17		<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-1 signature Routing area identity = RAI-1 Equivalent PLMN: MCC = 2, MNC = 1
17a		SS		The SS releases the RRC connection.
18		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
18a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call"
18b			Void	
18c			Void	
19		->	SERVICE REQUEST	service type = "paging response"
19aa		SS		The SS starts integrity protection.
19a		SS		The SS releases the RRC connection.
20		SS		The following messages are sent and shall be received on cell C. Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
21		UE		Cell C is preferred by the UE.
21a		UE	Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
22		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
23		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1
24		SS		The SS starts integrity protection.
25		<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-3 P-TMSI Signature = P-TMSI-3 signature Routing area identity = RAI-7 Equivalent PLMNs = MCC1,MNC1

Step	Direction		Message	Comments
	UE	SS		
26	->		ROUTING AREA UPDATE COMPLETE	
27	SS			The SS releases the RRC connection.
28	UE			The UE is switched off or power is removed (see ICS).
29	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
30	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
31	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
32	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 3 to step 31.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.1a.5 Test requirements

At step 3a, 7a, 15a and 22 the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 18a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating Interactive Call".

At step 29 the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step13, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- not respond to the paging message for PS domain.

At step16, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step19, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step23, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

12.4.1.1b Routing area updating / accepted / Signalling connection re-establishment

12.4.1.1b.1 Definition

12.4.1.1b.2 Conformance requirement

When the UE receives an indication from the lower layers that the RRC connection has been released with cause "Directed signalling connection re-establishment", then the UE shall enter PMM-IDLE mode and initiate immediately a normal routing area update procedure (the use of normal or combined procedure depends on the network operation mode in the current serving cell) regardless whether the routing area has been changed since the last update or not.

Reference

3GPP TS 24.008 clause 4.7.2.5, 4.7.5.1

12.4.1.1b.3 Test purpose

To test the behaviour of the UE if the UE receives a RRC CONNECTION RELEASE message with cause = "Directed signalling connection re-establishment".

12.4.1.1b.4 Method of test

Initial condition

System Simulator:

One cell(Cell A) in MCC1/MNC1/LAC1/RAC1 (RAI-1) operating in network operation mode II. ATT flag is set to 0.

User Equipment:

The UE has a valid TMSI, P-TMSI-1 and RAI-1

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

a) The UE initiates a Service request procedure in order to establish the PS signalling connection for the upper layer signalling.

b) After the Service request procedure is complete, the SS sends the RRC CONNECTION RELEASE message with cause = "Directed signalling connection re-establishment" to the UE.

c) After the UE release the RRC connection, the UE initiate immediately a normal routing area update procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = ' PS attach' Mobile identity = P-TMSI1

Step	Direction		Message	Comments
	UE	SS		
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = ' PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling",
8	<-		AUTHENTICATION AND CIPHERING REQUEST	
9	->		AUTHENTICATION AND CIPHERING RESPONSE	
10	SS			The SS starts integrity protection.
11	SS			The SS releases the RRC connection, using Release cause=Directed Signalling Connection Re-establishment
12			Void	
13	SS			SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Call re-establishment".
14			Void	
15			Void	
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' (FOR bit not checked) Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1
17	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
18	->		ROUTING AREA UPDATE COMPLETE	
19	UE			The UE is switched off or power is removed (see ICS).
20	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
21	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.4.1.1b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step16, UE shall;

- initiate the routing area updating procedure whether the routing area has been changed since the last update or not.

12.4.1.1c Void

12.4.1.2 Routing area updating / rejected / IMSI invalid / illegal ME

12.4.1.2.1 Definition

12.4.1.2.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Illegal ME'.

12.4.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All three cells are operating in network operation mode II (in case of UE operation mode A)
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned.P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old Routing area identity = RAI-1
9		<-	ROUTING AREA UPDATE REJECT	GMM cause = 'Illegal ME'
10		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell C.
12	SS			Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell A to the ìNon-Suitable cellî. Set the cell type of cell C to the "Serving cell". (see note)
13	UE			Cell C is preferred by the UE.
14	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
15	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
16	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
16a				Step 16b is only performed by UE in operation mode A

16b	UE	Registration on CS	See TS 34.108 Parameter mobile identity is IMSI.
17	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
17a	<-	AUTHENTICATION AND CIPHERING REQUEST	
17b	->	AUTHENTICATION AND CIPHERING RESPONSE	
17c	SS		The SS starts integrity protection.
18	<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
19	->	ATTACH COMPLETE	
20	UE		The UE is switched off or power is removed (see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.1.2.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step11, after the routing area updating procedure is rejected with GMM cause = 'Illegal ME', UE shall;

- not respond to the paging message for PS domain.

At step14, UE shall,

- not initiate PS attach procedure.

At step17, after the UE is powered up or USIM is replaced, UE shall;

- initiate the PS attach procedure.

12.4.1.3 Routing area updating / rejected / UE identity cannot be derived by the network

12.4.1.3.1 Definition

12.4.1.3.2 Conformance requirement

If the network rejects a routing area updating procedure from the User Equipment with the cause 'UE identity cannot be derived by the network', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Depending on the manufacturer the UE may or may not perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'UE identity cannot be derived by the network'.

12.4.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Automatic attach procedure when UE identity cannot be derived by the network Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal routing area updating with the cause value 'UE identity cannot be derived by the network'. The UE detach locally. A new PS attach may be performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity =P-TMSI-1 Old Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
10		<-	ROUTING AREA UPDATE REJECT	GMM cause = 'UE identity cannot be derived by the network'
11	UE			If an automatic attach procedure by the UE is not possible when the UE identity cannot be derived by the network (see ICS) goto step 19.
12	UE			An Automatic PS attach procedure is initiated (see ICS).
13		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
13a		<-	AUTHENTICATION AND CIPHERING REQUEST	
13b		->	AUTHENTICATION AND CIPHERING RESPONSE	
13c		SS		The SS starts integrity protection.
14		<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
15		->	ATTACH COMPLETE	
16	UE			The UE is switched off or power is removed (see ICS).
17		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

Step	Direction		Message	Comments
	UE	SS		
18	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
20	UE			No response from the UE to the request, as the UE has detached locally. This is checked for 10 seconds.
NOTE: The definitions for "Non-Suitable cell", Suitable neighbour cell and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the implementation of the UE.

Case 1) UE supports an Automatic PS attach procedure.

At step13, UE shall;

- initiate the PS attach procedure.

Case 2) UE does not support an Automatic PS attach procedure.

At step20, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

12.4.1.4a Routing area updating / rejected / location area not allowed

12.4.1.4a.1 Definition

12.4.1.4a.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform PS attach when in the same location area.

   1.2 delete the stored RAI, PS-CKSN, P-TMSI, P-TMSI signature and TMSI, LAI and ciphering key sequence number.

   1.3 store the LA in the 'forbidden location areas for regional provision of service'.

   1.4 not delete the list of "equivalent PLMNs".

   1.5 perform a cell selection.

2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment:

2.1 may perform routing area update when a new location area is entered.

2.2 shall delete the list of forbidden LAs after switch off (power off).

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4a.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.4.1.4a.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) , cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell D in MCC2/MNC1/LAC2/RAC1(RAI-6).
All four cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

The PLMN contains Cell D is equivalent to the PLMN that contains Cell C.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell C.
1		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 33.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell C is preferred by the UE.
3a			Void	
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
6	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
8		SS		Cell B is preferred by the UE.
8a				The following step is only performed for UE Operation Mode A.
8b	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-3
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Location Area not allowed'
11	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
12	UE			No response from the UE to the request. This is checked for 10 seconds.
		SS		The following messages are sent and shall be received on cell A.
13		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
13a	UE			The UE performs cell selection.
14	UE			Cell A is preferred by the UE.
15	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)

Step	Direction		Message	Comments
	UE	SS		
16		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
16a		UE		The UE performs cell selection.
17		UE		Cell D is preferred by the UE.
17a				The following messages are sent and shall be received on cell D. The following step is only performed for UE Operation Mode A.
17b	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI
		UE		The UE initiates a PS attach either automatically or manually (see ICS).
18	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
19	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
20	->		ATTACH COMPLETE	
21		UE		If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
22	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
22a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
23		UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
24	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-3
24a	<-		AUTHENTICATION AND CIPHERING REQUEST	
24b	->		AUTHENTICATION AND CIPHERING RESPONSE	
24c		SS		The SS starts integrity protection.
25	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
26	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell A.
27				Set the cell type of cell A to the "Serving cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
28				Cell A is preferred by the UE.
28a				The following step is only performed for UE Operation Mode A.
28b	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI
29	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-3

Step	Direction		Message	Comments
	UE	SS		
30	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned.P-TMSI and P-TMSI signature not included.Update result = 'RA updated' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
31	UE			The UE is switched off or power is removed (see ICS).
32	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
32a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
33	SS			The SS is set in network operation mode II.
34	UE			The UE is set in UE operation mode A (see ICS), cell A is switched off and the test is repeated from step 3 to step 32.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.4a.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step12, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step12 and 15, when in the same location area, UE shall

- not perform PS attach procedure.

At step18, when a new location area is entered, UE shall

- perform the PS attach procedure.

At step24, when the USIM is replaced , UE shall;

- perform the PS attach procedure.

At step29, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

12.4.1.4b Routing area updating / rejected / No Suitable Cells In Location Area

12.4.1.4b.1 Definition

12.4.1.4b.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

1.1 store the LA identity in the 'forbidden location areas for roaming'.

1.2 search for a suitable cell in a different location area on the same PLMN.

1.3 not delete equivalent PLMNs list.

1.4 not delete the MM and GMM contexts

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4b.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.1.4b.4 Method of test

Initial condition

System Simulator:

Four cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4),

All four cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

The PLMNs of cells A, B, C and D are all equivalent.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

ii) Cell D will be mapped to Cell 3 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform Routing Area Update procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following message are sent and shall be received on cell D.
1		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Serving cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell D is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 Equivalent PLMNs = MCC2,MNC1
5	->		ATTACH COMPLETE	
6		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C Cell A is preferred by the UE.
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 Mobile identity = P-TMSI-1
8	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area' The following message are sent and shall be received on cell B.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 Mobile identity = P-TMSI-1 The UE shall initiate a location area updating procedure between steps 8 and 12.
10	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
11	->		ROUTING AREA UPDATE COMPLETE	
12	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

13	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.1.4b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, UE shall;

- initiate the routing area updating procedure.

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.4.1.4c Routing area updating / rejected / PS services not allowed in this PLMN

12.4.1.4c.1 Definition

12.4.1.4c.2 Conformance requirement

If the network rejects a routing area updating procedure from the User Equipment with the cause 'PS service not allowed in this PLMN', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- shall set the PS update status to GU3 ROAMING NOT ALLOWED.
- store the PLMN identity in the "forbidden PLMNs for PS service" list.
- not delete the equivalent PLMN list.

UE shall perform the following actions depending on the update type, UE operation mode and network operation mode.

1) UE is in UE operation mode C

   UE shall perform a PLMN selection instead of a cell selection.

2) UE is in UE operation mode A, update type = periodic updating and Network is in network operation mode I

   UE shall set the timer T3212 to its initial value and restart it, if it is not already running.

3) UE is in UE operation mode A and Network is in network operation mode II.

   UE shall be still IMSI attached for CS services in the network.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.4c.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'PS services not allowed in this PLMN'.

12.4.1.4c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

The UE is in UE operation mode C.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure 1

The SS rejects a routing area updating with the cause value 'PS services not allowed in this PLMN'. The SS checks that the UE performs PLMN selection.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned.P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old Routing area identity = RAI-1
9		<-	ROUTING AREA UPDATE REJECT	GMM cause = 'PS services not allowed in this PLMN'
10		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
12	SS			Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell A to the "Serving cell". (see note)
13	UE			The UE performs PLMN selection.
14	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
15	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
17		->	ATTACH REQUEST	Update type = 'PS attach' Mobile identity = IMSI
17a		<-	AUTHENTICATION AND CIPHERING REQUEST	
17b		->	AUTHENTICATION AND CIPHERING RESPONSE	
17c	SS			The SS starts integrity protection.

18	<-	ATTACH ACCEPT	Update result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2 Equivalent PLMNs = MCC1,MNC1
19	->	ATTACH COMPLETE	
20	UE		The UE is switched off or power is removed (see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

Test procedure2

Initial condition

System Simulator:

One cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) operating in network operation mode I.

T3212 is set to 6 minutes.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE is in UE operation mode A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure with identity P-TMSI. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. A routing area updating procedure is performed at T3312 timeout. The SS rejects a routing area updating with the cause value 'PS services not allowed in this PLMN'. The UE sets the timer T3212 to its initial value and restart it, if it is not already running.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
5b	SS			The SS verifies that the time between the attach and the periodic RA updating is T3312
6	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
7	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'PS services not allowed in this PLMN'
8	UE		Registration on CS	See TS 34.108 Location Update Procedure is initiated from the UE when T3212 is expired.
9	->		void	
10	<-		void	
11	UE			The UE is switched off or power is removed (see ICS).
12	->		DETACH REQUEST	Message not sent if power is removDetach type ñ ëpower switched off, IMSI detachíed.
13	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.4c.5 Test requirements

Test requirement for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step11, after the routing area updating procedure is rejected with GMM cause = 'PS service not allowed in this PLMN', UE shall;

- not respond to the paging message for PS domain.

At step13, UE shall,

- initiate PLMN selection.

At step17, UE shall;

- initiate the PS attach procedure.

Test requirement for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step7, after the routing area updating procedure is rejected with GMM cause = 'PS service not allowed in this PLMN', UE shall;

- set the timer T3212 to its initial value and restart it.

At step8, UE shall,

- initiate the periodic location area updating procedure when the timer T3212 is expired.

12.4.1.4d Routing area updating / rejected / Roaming not allowed in this location area

12.4.1.4d.1 Definition

12.4.1.4d.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment:

   1.1 shall not perform PS attach when in the same location area.

   1.2 shall store the LA in the 'forbidden location areas for roaming'.

   1.3 shall perform a routing area updating when entering into a new location area if the LAI or the PLMN identity is not contained in any of the lists "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs" and the current status is different from "IDLE NO IMSI".

2) The User Equipment shall erase the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

References

3GPP TS 24.008 clause 4.7.5.1.4.

3GPP TS 23.122 clause 4.5.2.

3GPP TS 24.008 clause 4.4.1.

12.4.1.4d.3 Test purpose

Test purpose1

To test that on receipt of a rejection using the 'Roaming not allowed in this area' cause code, the UE ceases trying a routing area updating procedure on that location area. Successful routing area updating procedure is possible in other location areas.

Test purpose2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

12.4.1.4d.4 Method of test

12.4.1.4d.4.1 Test procedure1

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Roaming not allowed in this area'. A new attempt for a PS attach is not possible. Successful PS attach procedure is performed in another location area. The UE is moved back to the 1st location area. A routing area updating shall not be performed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI SS allocates Mobile identity = TMSI-1.
4	->		ATTACH REQUEST	Attach type = ' PS attach ' Mobile identity =IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the " Non-suitable cell ". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this area'
11	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
				The following messages are sent and shall be received on cell A.
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
18	UE			Cell A is preferred by the UE.
19	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.

Step	Direction		Message	Comments
	UE	SS		
20			Void	
21	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Mobile identity = P-TMSI-2
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c		SS		The SS starts integrity protection.
22	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
23	->		ROUTING AREA UPDATE COMPLETE	
24	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
25			Void	
26			Void	
27			Void	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29		SS		The SS releases the RRC connection.
30			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
32			Void	
33			Void	
34			Void	
35	->		SERVICE REQUEST	service type = "paging response"
36		SS		The SS releases the RRC connection.
37			Void	
38		SS		The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
39		UE		No ROUTING AREA UPDATE REQUEST sent to SS (SS waits 30 seconds).
40	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
41		UE		No response from the UE to the request. This is checked for 10 seconds.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

12.4.1.4d.4.2 Test procedure2

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Roaming not allowed in this area'. The UE is switched off for 10 seconds and switched on again. The SS checks that a PS attach is possible on the cell on which the previous routing area updating had been rejected.

If USIM removal is possible without switching off:
The SS rejects a routing area updating with the cause value 'Roaming not allowed in this area'. The USIM is removed and inserted in the UE. The SS checks that a PS attach procedure and routing area updating procedure is possible on the cell on which the routing area updating had previously been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI SS allocates Mobile identity = TMSI-1.
4	->		ATTACH REQUEST	Attach type = ' PS attach ' Mobile identity =IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this area'
11	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
18	UE			The UE gets the USIM replaced, is powered up or switched on.
19	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE.
20	UE			The UE initiates an attach automatically (see ICS) by MMI or AT command.

Step	Direction		Message	Comments
	UE	SS		
21	->		ATTACH REQUEST	Attach type = ' PS attach ' Mobile identity =P-TMSI-2
22a	<-		AUTHENTICATION AND CIPHERING REQUEST	
22b	->		AUTHENTICATION AND CIPHERING RESPONSE	
22c		SS		The SS starts integrity protection.
22	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6 MS~~Mobile~~ identity = TMSI-1
23	->		ATTACH COMPLETE	
24	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
25			Void	
26			Void	
27			Void	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29		SS		The SS releases the RRC connection.
30			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1
32			Void	
33			Void	
34			Void	
35	->		SERVICE REQUEST	service type = "paging response"
36		SS		The SS releases the RRC connection.
37			Void	
38	UE			The UE is switched off or power is removed (see ICS).
39	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
40		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.4d.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the routing area update procedure with the information elements specified above Expected Sequence

At step12, when the SS rejects the routing area update procedure with GMM cause = 'Roaming not allowed in this area', UE shall:

- not initiate a PS attach procedure.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step21, UE shall:

- initiate the routing area update procedure.

At step28, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step41, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

Test requirements for Test procedure2

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area update procedure with the information elements specified above Expected Sequence.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step21, UE shall:

- initiate the PS attach procedure.

At step28, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.4.1.5 Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes

12.4.1.5.1 Definition

12.4.1.5.2 Conformance requirement

When a routing area updating procedure is rejected with the attempt counter less than five, the UE shall repeat the routing area updating procedure after T3311 timeout.

When a T3311 timeout has occurred during a routing area updating procedure with the attempt counter five, the UE shall start timer T3302.

When the T3302 expire, a new routing area updating procedure shall be initiated.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.5.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.1.5.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). The ATT-flag shall indicate that the MS should use IMSI attach/detach procedures.
Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (attempt counter zero).

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter one) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter two) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter three) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter four) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure with attempt counter five (after T3311 expires).

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE shall not perform a new successful routing area updating procedure after T3311 seconds.

The UE initiates a routing area updating procedure with attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 12 minutes.

T3311; set to 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2a			Void	
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	UE		Registration on CS	See TS 34.108 This step is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = 'PS only attached' P-TMSI-2 signature Routing area identity = RAI-1
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7		SS		Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
9	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
10		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
12	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
13		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
14	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
15	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
16		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
17	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1

Step	Direction		Message	Comments
	UE	SS		
18	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
19	SS			The SS verifies that the time between the routing area updating requests is 15 seconds
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
21	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
22	SS			The SS verifies that the UE does not attempt to attach for 10 minutes .
23	SS			The SS shall release the PS signalling connection.
23a			Void	
24	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
25	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-3 signature Routing area identity = RAI-4
26	->		ROUTING AREA UPDATE COMPLETE	
27	UE			The UE is switched off or power is removed (see ICS).
28	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach' An IMSI Detach must be performed for an UE in Operation Mode A either before or after the PS Detach
29	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- perform the routing area updating procedure.

UE shall perform the following actions depending on the conditions described below.

Case 1) At step11, 14, 17 and 20, a routing area updating procedure is rejected from SS with the attempt counter less than five,

UE shall:

- repeat the routing area updating procedure after T3311 timeout

Case2) At step22 a routing area updating procedure is rejected from SS with the attempt counter five

At step22, UE shall:

- not initiate a routing area updating procedure.

Case3) At step24, the T3302 expires

UE shall:

- initiate the new routing area updating procedure

12.4.1.6 Routing area updating / abnormal cases / change of cell into new routing area

12.4.1.6.1 Definition

12.4.1.6.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.6.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.6.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) and cell C In MCC1/MNC1/LAC1/RAC3 (RAI-5).
All cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 18.
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8		SS		Cell B is preferred by the UE.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
10		SS		No response to the ROUTING AREA UPDATE REQUEST message is given by the SS
		SS		The following messages are sent and shall be received on cell C.
11		SS		Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
12		SS		Cell C is preferred by the UE.
13	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
14	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-3 signature Routing area identity = RAI-5
15	->		ROUTING AREA UPDATE COMPLETE	
16	UE			The UE is switched off or power is removed (see ICS).
17	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

17a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
18 19	SS UE		The SS is set in network operation mode II. The UE is set in UE operation mode A (see ICS). Set the cell type of cell C to the "Non-Suitable cell".The test is repeated from step 2 to step 17.
NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.1.6.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area update procedure.

At step13, when change of cell into a new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.1.7 Void

12.4.1.8 Routing area updating / abnormal cases / P-TMSI reallocation procedure collision

12.4.1.8.1 Definition

12.4.1.8.2 Conformance requirement

When a P-TMSI REALLOCATION COMMAND message is received by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a P-TMSI reallocation procedure. The UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach result = 'PS attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8		SS		Cell B is preferred by the UE.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1
10	<-		P-TMSI REALLOCATION COMMAND	~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
11	UE			The UE ignores the P-TMSI reallocation command.
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-4
13	->		ROUTING AREA UPDATE COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
16		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.4.1.8.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area updating procedure.

At step11, when a P-TMSI REALLOCATION COMMAND message is received from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the P-TMSI reallocation procedure.
- continue with the routing area updating procedure.

12.4.2 Combined routing area updating

The combined routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A that are IMSI attached for PS and non-PS services. In order to use the combined routing area updating procedure, the network must operate in network operation mode I.

12.4.2.1 Combined routing area updating / combined RA/LA accepted

12.4.2.1.1 Definition

12.4.2.1.2 Conformance requirement

1) If the network accepts the combined routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.
2) If the network accepts the combined routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the combined routing area updating procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is reallocated.
2) Old P-TMSI / P-TMSI signature is not changed.
3) Mobile terminating CS call is allowed with IMSI.
4) Mobile terminating CS call is allowed with TMSI.

12.4.2.1.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) A combined PS attach procedure is performed. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI, unassigns the TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI and IMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the IMSI is used

2) The UE is CS paged in order to verify that the IMSI is used for CS calls.

3) A combined PS attach procedure is performed. The UE sends an ROUTING AREA UPDATE REQUEST message. The SS accepts the P-TMSI signature and returns ROUTING AREA UPDATE ACCEPT message without any P-TMSI and with a new TMSI. The UE acknowledge the new TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE-SS is performed by the old P-TMSI. For CS calls, the new TMSI is used.

4) The UE is CS paged in order to verify that the TMSI is used for CS calls.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.

Step	Direction		Message	Comments
	UE	SS		
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
6a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
7a		SS		The SS starts integrity protection.
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = IMSI Routing area identity = RAI-4
9	->		ROUTING AREA UPDATE COMPLETE	
9a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
10b			Void	
10c			Void	
11	->		SERVICE REQUEST	service type = "paging response"
11aa		SS		The SS starts integrity protection.
11a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
11b			Void	
12	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call"
13		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
14			Void	
15			Void	
16	->		PAGING RESPONSE	Mobile identity = IMSI
17		SS		The SS releases the RRC connection.
18			Void	
19		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
19a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available

Step	Direction		Message	Comments
	UE	SS		
20a		SS		The SS starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' No P-TMSI P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
22	->		ROUTING AREA UPDATE COMPLETE	
23	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
23a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
23b			Void	
23c			Void	
24	->		SERVICE REQUEST	service type = "paging response"
24aa		SS		The SS starts integrity protection.
24a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
24b			Void	
25	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call"
26		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
27			Void	
28			Void	
29	->		PAGING RESPONSE	Mobile identity = TMSI-1
30		SS		The SS releases the RRC connection.
31			Void	
32	UE			The UE is switched off or power is removed (see ICS).
32a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
33	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
34		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step9, UE shall:

- acknowledge the new P-TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step11, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step16, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step20, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step22, UE shall:

- acknowledge the new TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step24, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step29, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.4.2.2 Combined routing area updating / UE in CS operation at change of RA

12.4.2.2.1 Definition

12.4.2.2.2 Conformance requirement

PS UE in UE operation mode A that is in an ongoing CS transaction at change of routing area shall initiate the normal routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.1

12.4.2.2.3 Test purpose

To test the behaviour of the UE if the routing area is changed during an ongoing circuit switched transmission.

12.4.2.2.4 Method of test

Initial condition

System Simulator:

One cell, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) is operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A combined PS attach procedure is performed. The UE in UE operation mode A initiates a CS call. The routing area change. The UE will perform the normal routing area updating procedure during the ongoing circuit-switched transaction.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1				Set the cell type of cell A to the "Serving cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			A CS call is initiated.
7			Void	
8			Void	
8a	<-		UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code.
8b	->		UTRAN MOBILITY INFORMATION CONFIRM	
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
9a	SS			The SS starts integrity protection.
10	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
11	->		ROUTING AREA UPDATE COMPLETE	
11a	SS			The SS releases the PS signalling connection, but keeps the RRC connection.
12	<-		PAGING TYPE2	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	->		SERVICE REQUEST	service type = "paging response"
13a	SS			The SS starts integrity protection.
13b	SS			The SS releases the CS call.
14	SS			The SS initiates the RRC connection release.
14a	->		ROUTING AREA UPDATE REQUEST	Update type = ìcombined RA/LA updatingî or "combined RA/LA updating with IMSI Attach", Old P-TMSI signature=P-TMSI-1 signature, Old Routing area identity = RAI-4, TMSI status = no valid TMSI available
14b	SS			The SS starts integrity protection.
14c	<-		ROUTING AREA UPDATE ACCEPT	Update result = "combined RA/LA updated", No P-TMSI, P-TMSI-3 signature, Routing area identity = RAI-1

15	UE		The UE is switched off or power is removed (see ICS).
15a	SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
16	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
17	SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

UTRAN MOBILITY INFORMATION (step 8a)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	30
- ATT	1
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	0 (Network Mode of Operation I)
- CN domain specific DRX cycle length coefficient	7

12.4.2.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE has received the new RAI from the SS in the UTRAN MOBILITY INFORMATION message, the UE shall:

- initiate the normal routing area updating procedure.

12.4.2.3 Combined routing area updating / RA only accepted

12.4.2.3.1 Definition

12.4.2.3.2 Conformance requirement

1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.

2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.3.3 Test purpose

Test porpose1

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'IMSI unknown in HLR'.

Test porpose2

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.4.2.3.4 Method of test

Test Procedure1

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message. The SS allocates a P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'IMSI unknown in HLR'
9	->		ROUTING AREA UPDATE COMPLETE	
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10a	->		RRC CONNECTION REQUEST	
10b	<-		RRC CONNECTION SETUP	
10c	->		RRC CONNECTION SETUP COMPLETE	
11	->		SERVICE REQUEST	service type = "paging response"
11a	<-		RRC CONNECTION RELEASE	
11b	->		RRC CONNECTION RELEASE COMPLETE	
12	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
13	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
16		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Test Procedure2

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells operating in network operation mode I. T3212 is set to 6 minutes.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Automatic MM IMSI attach procedure for UE operation mode A UE Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message . The SS allocates a new P-TMSI signature and returns ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. This procedure is repeated until the routing area updating attempt counter is equal to five. An UE operation mode A UE may perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity. It is further verified that the UE after a successful IMSI attach procedure can perform CS services.

Expected Sequence

Dependent whether the option 'Automatic MM IMSI attach procedure for UE operation mode A UE' is not supported or not, the steps 1-13 or 14-35 apply depending on manufacturer (see ICS).

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
1a		UE		The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is indicated (see ICS).
2		UE		The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	SS			The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
9	->		ROUTING AREA UPDATE COMPLETE	
10				The routing area updating attempt counter =1. The combined routing area updating procedure is reinitialised at the expiry of T3311
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
13	->		ROUTING AREA UPDATE COMPLETE	
14				The routing area updating attempt counter =2. The combined routing area updating procedure is reinitialised at the expiry of T3311
15	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
16	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
17	->		ROUTING AREA UPDATE COMPLETE	
18				The routing area updating attempt counter =3. The combined routing area updating procedure is reinitialised at the expiry of T3311

Step	Direction		Message	Comments
	UE	SS		
19	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
20	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
21	->		ROUTING AREA UPDATE COMPLETE	
22				The routing area updating attempt counter =4. The combined routing area updating procedure is reinitialised at the expiry of T3311
23	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
24	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
25	->		ROUTING AREA UPDATE COMPLETE	
26				The routing area updating attempt counter =5. The combined routing area updating procedure is reinitialised at the expiry of T3311
27	UE			The UE is switched off or power is removed (see ICS).
28	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach' Stop the sequence.
28a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B
29	UE			The UE is set in UE operation mode A and automatic MM IMSI attach procedure is indicated (see ICS).
30	UE			The UE is powered up or switched on and initiates an attach (see ICS).
31	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
31a	<-		AUTHENTICATION AND CIPHERING REQUEST	
31b	->		AUTHENTICATION AND CIPHERING RESPONSE	
31c	SS			The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
32	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-4
33	->		ATTACH COMPLETE	
34	SS			The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell ". (see note)
35	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-4 TMSI status = no valid TMSI available
36	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
37	->		ROUTING AREA UPDATE COMPLETE	
38				The routing area updating attempt counter =1. The combined routing area updating procedure is reinitialised at the expiry of T3311
39	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
40	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
41	->		ROUTING AREA UPDATE COMPLETE	
42				The routing area updating attempt counter =2. The combined routing area updating procedure is reinitialised at the expiry of T3311
43	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
44	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
45	->		ROUTING AREA UPDATE COMPLETE	
46				The routing area updating attempt counter =3. The combined routing area updating procedure is reinitialised at the expiry of T3311

Step	Direction		Message	Comments
	UE	SS		
47	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
48	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
49	->		ROUTING AREA UPDATE COMPLETE	
50				The routing area updating attempt counter =4. The combined routing area updating procedure is reinitialised at the expiry of T3311
51	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
52	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
53	->		ROUTING AREA UPDATE COMPLETE	
54				The routing area updating attempt counter =5.
55	UE		Registration on CS	Optional step. See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI-1. Steps 56 - 62 are only performed if the UE has performed the Registration Procedure in step 55.
56	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
57	->		RRC CONNECTION REQUEST	
58	<-		RRC CONNECTION SETUP	
59	->		RRC CONNECTION SETUP COMPLETE	
60	->		PAGING RESPONSE	Mobile identity = TMSI-1
61	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
62	->		RRC CONNECTION RELEASE COMPLETE	
63	UE			The UE is switched off or power is removed (see ICS).
64	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
65	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.3.5 Test requirements

Test requirements for Test Procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure.

At step9, UE shall:

- acknowledge the new P-TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step11, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step13, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

Test requirements for Test Procedure2

At step3 and 31, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step6 and 35, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure.

At step11, 15, 19 and 23, UE shall:

- re-initiate the combined routing area updating procedure.

At step39, 43, 47 and 51, UE shall:

- re-initiate the combined routing area updating procedure.

At step55, UE shall:

- perform MM location updating procedure.

At step60, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.4.2.3a Void

12.4.2.4 Combined routing area updating / rejected / PLMN not allowed

12.4.2.4.1 Definition

12.4.2.4.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:

1.1 not perform combined GPRS attach when switched on in the same location area or PLMN, except when the PLMN identity is equal to the HPLMN.

1.2 delete the stored RAI, PS-CKSN, P-TMSI, P-TMSI signature, TMSI CKSN and LAI.

1.3 store the PLMN in the 'forbidden PLMN list', except when the PLMN identity is equal to the HPLMN.

2) An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, enters state MM IDLE and for all causes except #12, #14 and #15 deletes the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clause 4.7.5.2.

3GPP TS 23.122 clause 3.1.

12.4.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined routing area updating procedure of the UE with the cause 'PLMN not allowed'.

12.4.2.4.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell B in MCC1/MNC2/LAC1/RAC2 (RAI-10), cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2) and cell E in MCC1/MNC3/LAC1/RAC1 (RAI-11).

The PLMN containing Cell E is equivalent to the PLMN that contains Cell A.
All four cells are operating in network operation mode I

The HPLMN is different from MCC1/MNC2.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell E will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
Switch off on button	Yes/No
Automatic PS attach procedure at switch on or power on	Yes/No
PS attach attempted automatically by outstanding request	Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same PLMN. The SS checks that the UE does not perform IMSI attach if activated in the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-8 P-TMSI Signature = P-TMSI-8 signature Routing area identity = RAI-8 MS~~Mobile~~ identity = TMSI-1 Equivalent PLMN: MCC = 1, MNC=3
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B and cell E.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". Set the cell type of cell E to the "Suitable neighbour cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating'Old P-TMSI Signature= P-TMSI-8 signature Old Routing area identity = RAI-8 Valid TMSI is available. TMSI status = valid TMSI available or IE not present Mobile identity = P-TMSI-8
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'PLMN not allowed'
10a		SS		The SS releases the RRC connection.
10b				Cell E is preferred by the UE Step 11 and 11a are only performed by an UE which will not initiate a PS attach automatically (see ICS)
11 conditional	UE		Registration on CS	See TS 34.108 Location Update Procedure is initiated from the UE.

Step	Direction		Message	Comments
	UE	SS		
11a conditional				The UE initiates an attach by MMI or by AT command.
12		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
12a	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity =IMSI TMSI status = no valid TMSI available
13	<-		AUTHENTICATION AND CIPHERING REQUEST	
14	->		AUTHENTICATION AND CIPHERING RESPONSE	
14a		SS		The SS starts integrity protection.
15	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-11 P-TMSI Signature = P-TMSI-11 signature Routing area identity = RAI-11 MS~~Mobile~~ identity = TMSI-2 Equivalent PLMN: MCC = 1, MNC=2
16	->		ATTACH COMPLETE	
17		SS		The SS releases the RRC connection.
18	<-		PAGING TYPE1	Paging is sent on cell A. Mobile identity= P-TMSI-11 P-TMSI-11 signature Paging order for PS services
18a				The UE shall not initiate an RRC connection. This is checked during 3 seconds.
19	<-		PAGING TYPE1	Paging is sent on cell B. Mobile identity = TMSI-2 Paging order is for CS services.
20		UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21			Void	
22			Void	
23			Void	
24			Void	
25			Void	
26			Void	
27		SS		The following messages are sent and shall be received on cell D. Set the cell type of cell B and E to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
28		UE		Cell D is preferred by the UE.
28a			Void	
29			Void	
29a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
30	->		ROUTING AREA UPDATE REQUEST	Update type = 'combined RA/LA updating' Old P-TMSI Signature= P-TMSI-11 signature Old Routing area identity = RAI-11 TMSI status = valid TMSI available or IE not present
30a		SS		The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
31	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'combined RA/LA updated ' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2
32	->		ROUTING AREA UPDATE COMPLETE	
33	UE			The UE is switched off or power is removed (see ICS).
34	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
35	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Non-Suitable cell", "Serving cell" and "Suitable neighbour cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.4.2.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- -initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step 10, the UE shall delete the equivalent PLMN list (MCC=1, MNC=3).

At step 12, the UE shall initiate a PS attach procedure to cell E.

At step18, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step19, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step30, UE shall:

- perform the combined routing area update procedure.

12.4.2.5a Combined routing area updating / rejected / roaming not allowed in this location area

12.4.2.5a.1 Definition

12.4.2.5a.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment:

1.1 shall not perform combined PS attach when in the same location area.

1.2 shall store the LA in the 'forbidden location areas for roaming'.

1.3 shall perform a routing area update when entering in a new location area if the LAI or the PLMN identity is not contained in any of the lists "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs" and the current update status is different from "IDLE NO IMSI".

2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

3GPP TS 23.122 clause 4.5.2.

12.4.2.5a.3 Test purpose

Test purpose1

To test that on receipt of a rejection using the 'Roaming not allowed in this area' cause code, the UE ceases trying a routing area updating procedure on that location area. Successful combined routing area updating procedure is possible in other location areas.

Test purpose2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

12.4.2.5a.4 Method of test

12.4.2.5a.4.1 Test procedure1

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this area'. A new attempt for a combined PS attach is not possible. Successful combined routing area updating procedure is performed in another location area. The UE is moved back to the 1st location area. A combined routing area updating shall not be performed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 MS~~Mobile~~ identity = TMSI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2 Mobile identiy = P-TMSI-2
9a		SS		SS starts integrity protection
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this area'
10a		SS		The SS releases the RRC connection.
11			Void	
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
		SS		The following messages are sent and shall be received on cell A.
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
18	UE			Cell A is preferred by the UE.
18a			Void	
19			Void	

Step	Direction		Message	Comments
	UE	SS		
19a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' or 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2 Mobile identiy = P-TMSI-2
20a		SS		The SS starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2 MS~~Mobile~~ identity = TMSI-1
22	->		ROUTING AREA UPDATE COMPLETE	
22a		SS		The SS releases the RRC connection.
23	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call"
24		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
25			Void	
26			Void	
27	->		PAGING RESPONSE	Mobile identity = TMSI-1
27a		SS		The SS starts integrity protection.
28		SS		The SS releases the RRC connection
29			Void	
30	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating background call"
30a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating background call".
30b			Void	
30c			Void	
31	->		SERVICE REQUEST	service type = "paging response"
31o		SS		The SS starts integrity protection.
31a		SS		The SS releases the RRC connection.
31b			Void	
				The following messages are sent and shall be received on cell B.
32		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
33		UE		No ROUTING AREA UPDATE REQUEST sent to SS (SS waits 30 seconds).
34	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
35		UE		No response from the UE to the request. This is checked for 10 seconds.
NOTE: The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

12.4.2.5a.4.2 Test procedure2

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this area'. The UE is switched off for 10 seconds and switched on again. The SS checks that a combined PS attach is possible on the cell on which the previous combined routing area updating had been rejected.

If USIM removal is possible without switching off:
The SS rejects a routing area updating with the cause value 'Roaming not allowed in this area'. The USIM is removed and inserted in the UE. The SS checks that a PS attach procedure and routing area updating procedure is possible on the cell on which the routing area updating had previously been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 MS~~Mobile~~ identity = TMSI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2 Mobile identiy = P-TMSI-2
9a		SS		The SS starts integrity protection
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this area'
10a		SS		The SS releases the RRC connection.
11			Void	
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
17a		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)

Step	Direction		Message	Comments
	UE	SS		
18	UE			The UE gets the USIM replaced, is powered up or switched on.
18a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE.
19	UE			The UE initiates an attach (see ICS) by MMI or AT command.
19a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI_2 TMSI status = valid TMSI available or IE not present
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c	SS			The SS starts integrity protection.
21	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-6 MS~~Mobile~~ identity = TMSI-1
22	->		ATTACH COMPLETE	
22a	SS			The SS releases the RRC connection.
23	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call"
24	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
25			Void	
26			Void	
27	->		PAGING RESPONSE	Mobile identity = TMSI-1
27a	SS			The SS starts integrity protection.
28	SS			The SS releases the RRC connection.
29			Void	
30	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging cause = "Terminating background call"
30a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating background call".
30b			Void	
30c			Void	
31	->		SERVICE REQUEST	service type = "paging response"
31o	SS			The SS starts integrity protection.
31a	SS			The SS releases the RRC connection.
31b			Void	
32	UE			The UE is switched off or power is removed (see ICS).
33	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'
34	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Step	Direction		Message	Comments
	UE	SS		
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.5a.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence

At step12, when the SS rejects the combined routing area update procedure with GMM cause = 'Roaming not allowed in this area', UE shall:

- not initiate a PS attach procedure.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step20, UE shall:

- initiate the combined RA/LA updating procedure.

At step27, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step31, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step35, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step20, UE shall:

- initiate the combined PS attach procedure.

At step27, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step31, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.4.2.5b Combined routing area updating / rejected / No Suitable Cells In Location Area.

12.4.2.5b.1 Definition

12.4.2.5b.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   1.1 store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

   1.2 search for a suitable cell in a different location area on the same PLMN.

2) An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, enters state MM IDLE and for all causes except #12, #14 and #15 deletes the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5b.3 Test purpose

To test the behaviour of the UE if the network rejects a combined routing area updating procedure of the UE with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.2.5b.4 Method of test

Initial condition

System Simulator:

Five cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell E in MCC1/MNC2/LAC1/RAC1 (RAI-5).

All five cells are operating in network operation mode I.

The PLMN contains Cell A, B and D is equivalent to the PLMN that contains Cell E.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell D will be mapped to Cell 3 as found in TS 34.108 clause 6.1.4.2.

iii) Cell E will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall performa combined routing area update procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following message are sent and shall be received on cell D.
1		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Serving cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell D is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4 MS~~Mobile~~ identity = IMSI Equivalent PLMN: MCC = 1, MNC=2
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Non-Suitable cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C Cell A is preferred by the UE.
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4
8	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area'
8a		SS		The SS releases the RRC connection. The following message are sent and shall be received on cell B.
9	->		ROUTING AREA UPDATE REQUEST	Attach type = 'Combined RA/LA updating with IMSI attach' Mobile identity = P-TMSI-1
10	<-		ROUTING AREA UPDATE ACCEPT	Attach result = 'Combined RA/LA updating with IMSI attach' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-3 Equivalent PLMN: MCC = 1, MNC=2
11	->		ROUTING AREA UPDATE COMPLETE	

11a	SS		The SS releases the RRC connection.
12	SS		Set the cell type of cell D to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell E to the "Suitable neighbour cell". (note) The SS deactivates Cell B and activates Cell D and Cell E The SS configures power level of each Cell as follows. Cell D > Cell E
13			Cell D is preferred by the UE.
14	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4
15	<-	ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area'
15a	SS		The SS releases the RRC connection.
16			The following message are sent and shall be received on cell E.
17	->	ROUTING AREA UPDATE REQUEST	Attach type = 'Combined RA/LA updating with IMSI attach' Mobile identity = IMSI
18	<-	ROUTING AREA UPDATE ACCEPT	Attach result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-3 P-TMSI Signature = P-TMSI-3 signature Routing area identity = RAI-5 Equivalent PLMN: MCC=1. MNC=2
19	->	ROUTING AREA UPDATE COMPLETE	
20	SS		The SS releases the RRC connection.
21	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell", "Serving cell" and "Non-Suitable cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.2.5b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure.

At step 8, the UE shall maintain the equivalent PLMN list (MCC=1, MNC=2).

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the combined routing area update procedure.

At step 15, the UE shall maintain the equivalent PLMN list (MCC=1, MNC=2).

At step 17, when the UE enters a suitable cell in a different but equivalent PLMN (MCC=1, MNC=2), UE shall:

- perform the combined routing area update procedure.

12.4.2.5c Combined routing area updating / rejected / Location area not allowed

12.4.2.5c.1 Definition

12.4.2.5c.2 Conformance requirement

If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'Location area not allowed', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete any TMSI, LAI and ciphering key sequence number.
- store the LAI in the list of "forbidden location areas for regional provision of service"
- not delete the list of "equivalent PLMNs".
- perform a cell selection.

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5c.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'PS services not allowed in this PLMN'.

12.4.2.5c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode I (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

The UE is in UE operation mode A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Location area not allowed'. The SS checks that the UE performs combined PS attach when the UE enters a equivalent PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2	SS			The SS is set in network operation mode I. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 MS~~Mobile~~ identity = TMSI-1 Equivalent PLMNs = MCC2,MNC1
5a	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-2
9	<-		ROUTING AREA UPDATE REJECT	GMM cause = Location area not allowed '
10	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
14	UE			The UE performs cell selection.
				The following messages are sent and shall be received on cell C.
15	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available

16	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 MS~~Mobile~~ identity = TMSI-2 Equivalent PLMNs = MCC1,MNC1
17	->	ATTACH COMPLETE	
18	UE		The UE is switched off or power is removed (see ICS).
19	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
20	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.2.5c.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- initiate the combined routing area update procedure.

At step 12, the UE shall:

- not initiate combined PS attach procure.

At step 14, the UE shall:

- perform combined PS attach procedure with Mobile identity = IMSI and Attach result = 'Combined PS / IMSI attached' to the equivalent cell.

12.4.2.5d Combined routing area updating / rejected / PS services not allowed in this PLMN

12.4.2.5d.1 Definition

12.4.2.5d.2 Conformance requirement

If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'PS Services not allowed in this PLMN', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- store the PLMN identity in the "forbidden PLMNs for GPRS service" list.
- not delete the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5d.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'PS services not allowed in this PLMN'.

12.4.2.5d.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode I (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell C will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has a valid IMSI.

The UE is in UE operation mode A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'PS service not allowed in this PLMN'. The SS checks that the UE performs combined PS attach when the UE enters a equivalent PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS~~Mobile~~ identity = TMSI-1 Equivalent PLMNs = MCC2,MNC1
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-8
9	<-		ROUTING AREA UPDATE REJECT	GMM cause ='PS service not allowed in this PLMN'
10	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
				The following messages are sent and shall be received on cell C.
14	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
15	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-6 MS ~~Mobile~~ identity = TMSI-2 Equivalent PLMNs = MCC1,MNC1

16	->	ATTACH COMPLETE	
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
19	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.4.2.5d.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- initiate the combined routing area update procedure.

At step 12, the UE shall:

- not initiate combined PS attach procure.

At step 14, the UE shall:

- perform combined PS attach procedure with Mobile identity = IMSI and Attach result = 'Combined PS / IMSI attached' to the equivalent cell.

12.4.2.6 Combined routing area updating / abnormal cases / access barred due to access class control

12.4.2.6.1 Definition

12.4.2.6.2 Conformance requirement

1) The UE shall not perform combined routing area updating procedure, but stays in the current serving cell and applies normal cell reselection process.

2) The User Equipment shall perform the combined routing area updating procedure when:

   2.1 Access is granted.

   2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.6.3 Test purpose

Test purpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test purpose2

To test the behaviour of the UE in case of access class control (cell is changed).

12.4.2.6.4 Method of test

12.4.2.6.4.1 Test procedure1

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred on Cell B.

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has Access Class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has Access Class x barred.
Both cells are operating in network operation mode I.

User Equipment:

The UE has valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

The SS indicates that access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS~~Mobile~~ identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ROUTING AREA UPDATE REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
9		SS		The access class x is not barred anymore.
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-4
12	->		ROUTING AREA UPDATE COMPLETE	
13	UE			The UE is switched off or power is removed (see ICS).
14	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'
15		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.6.4.2 Test procedure2

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell B.

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x barred, cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x not barred.
All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3		->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a		<-	AUTHENTICATION AND CIPHERING REQUEST	
3b		->	AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4		<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS~~Mobile~~ identity = IMSI
5		->	ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ROUTING AREA UPDATE REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
9		SS		Set the cell type of cell B to the "Suitable neighbour cell ". Set the cell type of cell C to the "Serving cell". (see note)
10	UE			Cell C is preferred by the UE.
11		->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
12		<-	ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-4
13		->	ROUTING AREA UPDATE COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'
16		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.4.2.6.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the access class x is barred , UE shall:

- not perform the combined routing area updating procedure.

At step10, when the access class x is not barred, UE shall:

- perform the combined routing area updating procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the access class x is barred UE shall:

- not perform the combined routing area updating procedure.

At step11, when the serving cell is changed, UE shall:

- perform the combined routing area updating procedure.

12.4.2.7 Combined routing area updating / abnormal cases / attempt counter check / procedure timeout

12.4.2.7.1 Definition

12.4.2.7.2 Conformance requirement

1) When a T3330 timeout has occurred during a routing area updating procedure, the UE shall repeat the routing area updating procedure after T3330 timeout until the procedure is repeated five times.

2) When a routing area updating procedure is repeated five times, the routing area updating attempt counter is incremented and five more routing area updating procedures are performed. This procedure is repeated until the routing area updating attempt counter is five, the UE shall then start timer T3302.

3) When the T3302 expire, a new routing area updating procedure shall be initiated.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.7.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.2.7.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (routing area updating attempt counter zero). The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter one) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter two) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter three) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter four) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and as the routing area updating attempt counter is five. T3302 is started.

The UE may perform a Location Update procedure.

The UE initiates a routing area updating procedure with routing area updating attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 12 minutes.

T3311; 15 seconds.

T3330; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS~~Mobile~~ identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE. K = 1.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k (k is not visible. It is only used for clarifying the sequence.) Retransmission counter = 0
9		SS		No response is given from the SS.
10		SS		The SS verifies that the time between the RA update requests is T3330seconds
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 1
12		SS		No response is given from the SS.
13		SS		The SS verifies that the time between the RA update requests is T3330seconds
14	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 2
15		SS		No response is given from the SS.
16		SS		The SS verifies that the time between the RA update requests is T3330seconds

Step	Direction		Message	Comments
	UE	SS		
17	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 3
18	SS			No response is given from the SS.
19	SS			The SS verifies that the time between the RA update requests is T3330seconds
20	->		ROUTING AREA UPDATING REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 4
21	SS			No response is given from the SS.
22	SS			The SS verifies that the time between the RA update requests is T3311 + T3330 seconds.
23	SS			Step 8 ñ 22 is repeated four times with k = 2, k = 3, k = 4 and k = 5
23a optional	UE		Registration on CS	The UE may perform a normal location updating procedure. See TS 34.108
24	SS			The SS verifies that the time between the RA update requests is T3302 + T3330 seconds
25	->		ROUTING AREA UPDATE REQUEST	Update type = - 'combined RA/LA updating with IMSI attach' (If Step23a is performed) - 'combined RA/LA updating' (If Step23a is not performed) Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
26	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = IMSI Routing area identity = RAI-4
27	->		ROUTING AREA UPDATE COMPLETE	
28	UE			The UE is switched off or power is removed (see ICS).
29	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'
30	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.7.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure with information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the conditions described below.

Case 1) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retransmission counter less than five

At step11, 14, 17 and 20, UE shall:

- repeat the combined routing area updating procedure after the timer T3330 timeout

Case2) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retransmission counter five

At step 22, UE shall:

- not repeat the combined routing area updating procedure.

Case 3) A timer T3311 timeout has occurred and the Routing area attempt counter is less than five,

At step23, UE shall:

- repeat the combined routing area updating procedure

Case 4) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter five and the Retransmission counter five.

At step24, UE shall:

- not initiate a routing area updating procedure.

Case5) The timer T3302 expires

At step25, UE shall:

- initiate the new routing area updating procedure

12.4.2.8 Combined routing area updating / abnormal cases / change of cell into new routing area

12.4.2.8.1 Definition

12.4.2.8.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.8.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC1/RAC3 (RAI-5).
All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area. The UE shall not increment the attempt counter.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS~~Mobile~~ identity = IMSI
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
9		SS		No response id given from the SS.
				The following messages are sent and shall be received on cell C.
10		SS		Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
11	UE			The RF level of cell B is lowered, and the RF level of cell C is increased, until cell C is preferred by the UE.
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = IMSI Routing area identity = RAI-5
14	->		ROUTING AREA UPDATE COMPLETE	
15	UE			The UE is switched off or power is removed (see ICS).
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'

17	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.2.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the routing area update procedure.

At step12, when change of cell into new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.2.9 Void

12.4.2.10 Combined routing area updating / abnormal cases / PS detach procedure collision

12.4.2.10.1 Definition

12.4.2.10.2 Conformance requirement

1) When a detach request is received with cause 'PS detach' or 'combined PS/IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall terminate the routing area updating procedure and continue with the PS detach procedure.

2) When a detach request is received with cause 'IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the detach request and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.10.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.10.4 Method of test

12.4.2.10.4.1 Test procedure1

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'PS detach' or 'combined PS/IMSI detach'. The UE shall terminate the routing area updating procedure and continue with the PS detach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS~~Mobile~~ identity = IMSI
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
9		SS		The SS ignores the ROUTING AREA UPDATE REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 're-attach not required'
11	->		DETACH ACCEPT	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.10.4.2 Test procedure2

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'IMSI detach'. The UE shall ignore the detach procedure and continue with the routing area updating procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 MS~~Mobile~~ identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = no valid TMSI available
9		SS		The SS ignores the ROUTING AREA UPDATE REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 'IMSI detach'
11	UE			The UE ignores the DETACH REQUEST message and continue the routing area updating procedure.
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = IMSI Routing area identity = RAI-4
13	->		ROUTING AREA UPDATE COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'
16		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.10.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate routing area update procedure.

At step11, when the UE receives a DETACH REQUEST message with cause 'PS detach' or 'combined PS/IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- terminate the routing area updating procedure
- continue with the PS detach procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate routing area update procedure.

At step11, the UE receives a DETACH REQUEST message with cause 'IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the detach request procedure.
- continue with the routing area updating procedure.

12.4.3 Periodic routing area updating

12.4.3.1 Periodic routing area updating / accepted

12.4.3.1.1 Definition

12.4.3.1.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.1.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure with identity P-TMSI. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. A routing area updating procedure is performed at T3312 timeout.

T3312; set to 6 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 11.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
5b		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
6	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
7		SS		The SS verifies that the time between the attach and the periodic RA updating is T3312
7a		SS		The SS starts integrity protection.
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1
8a		SS		The SS releases the RRC connection.
9	UE			The UE is switched off or power is removed (see ICS).
9a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
10	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
10a		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
11				The SS is set in network operation mode II.
12	UE			The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 10.

Specific message contents

None.

12.4.3.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, when the timer T3312 is expired, UE shall:

- initiate the routing area updating procedure with Update type = 'Periodic updating'.

12.4.3.2 Periodic routing area updating / accepted / T3312 default value

12.4.3.2.1 Definition

12.4.3.2.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.2.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. After 54 minutes, a periodic routing area updating procedure is initiated by the UE.

T3312; default value 54 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
2a	<-		AUTHENTICATION AND CIPHERING REQUEST	
2b	->		AUTHENTICATION AND CIPHERING RESPONSE	
2c	SS			The SS starts integrity protection.
3	<-		ATTACH ACCEPT	Attach result = 'Combined PS /IMSI attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 T3312 = 54 min
4	->		ATTACH COMPLETE	
5	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE not present.
6	SS			The SS verifies that the time between the attach request and the periodic RA updating is T3312
7	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI and TMSI not included. Update result = 'RAupdated' P-TMSI-3 signature Routing area identity = RAI-1
8	UE			The UE is switched off or power is removed (see ICS).
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS/IMSI detach'
10	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.4.3.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step5, when the timer T3312 is expired, UE shall:

- initiate the routing area updating procedure with Update type = 'Periodic updating'.

12.4.3.3 Periodic routing area updating / no cell available / network mode I

12.4.3.3.1 Definition

12.4.3.3.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode I, then the UE shall perform a combined routing area update procedure indicating 'combined RA/LA updating with IMSI attach'.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.3.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.3.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Cell A is operating in network operation mode II and cell B is in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Idle updated on Cell A

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a routing area updating procedure is performed immediately.

T3312; set to 6 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2		SS		The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
6	->		ATTACH COMPLETE	
7		SS		After 5 minutes, the signal strength is lowered until the UE has lost contact with the SS. Set the cell type of cell A to the "non-suitable cell".(see note)
8		SS		Wait 2 minutes.
				The following messages are sent and shall be received on cell B.
9		SS		Set the cell type of cell B to the "Serving cell". (see note)
10	UE			Cell B is preferred by the UE.
11	UE			The UE immediately starts a combined RA updating procedure
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted.
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-3 P-TMSI Signature = P-TMSI-3 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-4
14	->		ROUTING AREA UPDATE COMPLETE	
15	UE			The UE is switched off or power is removed (see ICS).
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
17		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.4.3.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step12, when the UE is both IMSI attached for PS and non-PS service , and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell that supports PS and the network is in network oration mode I, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

12.4.3.4 Periodic routing area updating / no cell available

12.4.3.4.1 Definition

12.4.3.4.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode II, then the UE shall perform a periodic routing area update procedure and a periodic location update procedure.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.4.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Idle updated on Cell A

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a periodic routing area updating procedure is performed immediately (no periodic location update procedure is performed as T3212=infinity).

T3312; set to 6 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is powered up or switched on and initiates an attach (see ICS).
1a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
2	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
2a	<-		AUTHENTICATION AND CIPHERING REQUEST	
2b	->		AUTHENTICATION AND CIPHERING RESPONSE	
2c		SS		The SS starts integrity protection.
3	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
4	->		ATTACH COMPLETE	
5-12			(void)	
13		SS		After 5 minutes, the signal strength is lowered until the UE have lost contact with the SS.
14		SS		After 2 minutes, the signal strength is increased until the UE have got contact with the SS.
15	UE			The UE immediately start the periodic RA updating procedure
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
17	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RAupdated' P-TMSI-3 signature Routing area identity = RAI-1
18	UE			The UE is switched off or power is removed (see ICS).
18a			IMSI DETACH INDICATION	Message not sent if power is removed This is applicable only for UE in UE operation mode A.
19	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
20	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

RRC System information block type 1

Information element	Comment Value
T3212 (Periodical Location updating)	Infinity

12.4.3.4.5 Test requirements

At step2, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step16, when the UE is both IMSI attached for PS and non-PS service, and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell in the same RA that supports PS and that indicates that the network is in network operation mode II, UE shall:

- perform the periodic routing area updating procedure indicating "Periodic updating".

12.5 P-TMSI reallocation

12.5.1 Definition

12.5.2 Conformance requirement

1) A User Equipment shall acknowledge a new P-TMSI when explicitly allocated.

2) The P-TMSI shall be updated on the USIM when the User Equipment is correctly deactivated in accordance with the manufacturer's instructions.

3) A User Equipment shall use the given P-TMSI in further communication with the network.

Reference

3GPP TS 24.008 clause 4.7.6.

12.5.3 Test purpose

To verify that the UE is able to receive and acknowledge a new P-TMSI by means of an explicit P-TMSI reallocation procedure.

To verify that the UE has stored the P-TMSI in a non-volatile memory.

The implicit reallocation procedure is tested in the attach procedure.

12.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No (only if mode A not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An explicit P-TMSI reallocation procedure is performed (P-TMSI reallocation command sent from the SS and acknowledged from the UE by P-TMSI reallocation complete). The UE is PS detached and switched off. Its power supply is interrupted for 10 seconds. The power supply is resumed and then the UE is switched on. A PS attach procedure is performed with the given P-TMSI as identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		P-TMSI REALLOCATION COMMAND	~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
7	->		P-TMSI REALLOCATION COMPLETE	
8	UE			The UE is switched off or power is removed (see ICS).
8a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
9a	SS			If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
10	UE			Ensure the power is removed from the UE for at least 10 seconds
11	UE			The UE is powered up or switched on and initiates an attach (see ICS).
11a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
12	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2 Old Routing area identity = RAI-1
12a	<-		AUTHENTICATION AND CIPHERING REQUEST	
12b	->		AUTHENTICATION AND CIPHERING RESPONSE	
12c	SS			The SS starts integrity protection.
13	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = 'PS only attached' P-TMSI-3 signature Routing area identity = RAI-1
13a	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.
14	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services. Paging cause = "Terminating interactive call".

15	SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
16		Void	
17		Void	
18	->	SERVICE REQUEST	service type = "paging response"
18a	SS		The SS starts integrity protection.
19	SS		The SS releases the RRC connection.
20		Void	
21	UE		The UE is switched off or power is removed (see ICS).
21a	SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
22	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
23	SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

Specific message contents

None.

12.5.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE receives P-TMSI REALLOCATION COMMAND message from SS, UE shall:

- acknowledge the new P-TMSI by sending P-TMSI REALLOCATION COMPLETE message.

At step12, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step18, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.6 PS authentication

12.6.1 Test of authentication

The purpose of this procedure is to verify the user identity. A correct response is essential to guarantee the establishment of the connection. If not, the connection will drop.

12.6.1.1 Authentication accepted

12.6.1.1.1 Definition

12.6.1.1.2 Conformance requirement

A User Equipment shall correctly respond in an authentication and ciphering procedure by sending a response with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the authentication and ciphering procedure.

12.6.1.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in both cells.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The SS checks the value RES sent by the UE in the AUTHENTICATION AND CIPHERING RESPONSE message.

The UE initiates a routing area updating procedure and the SS checks the value of the PS Ciphering Key Sequence Number sent by the UE in the ROUTING AREA REQUEST message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 17.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN-1
6	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
7		SS		The SS checks the RES value and starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
9	->		ATTACH COMPLETE	
9a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
10		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 PS-CKSN-1
12		SS		The value of PS-CKSN is checked. Integrity protection is started.
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
14	->		ROUTING AREA UPDATE COMPLETE	
15	UE			The UE is switched off or power is removed (see ICS).
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
16a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)

18	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 3 to step 16a.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.6.1.1.5 Test requirements

At steps 3a and 10a the UE shall transmit an RRC CONNECTION REQUEST message with the IE "Establishment cause" set to "Registration".

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message form SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

At step11, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- perform routing area updating procedure.

12.6.1.2 Authentication rejected by the network

12.6.1.2.1 Definition

12.6.1.2.2 Conformance requirement

Upon receipt of an AUTHENTICATION AND CIPHERING REJECT message, the UE shall set the PS update status to GU3 ROAMING NOT ALLOWED and shall delete the P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number stored.

The USIM shall be considered as invalid until switching off or the USIM is removed.

If the AUTHENTICATION AND CIPHERING REJECT message is received, the UE shall abort any GMM procedure, shall stop the timers T3310 and T3330 (if running) and shall enter state GMM-DEREGISTERED.

Reference

3GPP TS 24.008 clauses 4.7.7.5.

12.6.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the authentication and ciphering procedure.

12.6.1.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The test sequence is repeated for K = 1, 2.

A complete PS attach procedure is performed. The SS rejects the following authentication and ciphering procedure. The UE is paged with its IMSI and shall not respond.
The Cell is changed into a new Routing Area.

The SS checks that the UE does not perform normal routing area updating.

The SS then checks that the UE does not perform a PS detach.

The SS checks that the UE does not perform a PS Attach procedure.

Expected Sequence

The test sequence is repeated for k = 1, 2

For k =1, the UE is set in UE operation mode C. If MS operation mode C not supported then k = 2.

For k = 2 the UE is set in UE operation mode A.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
2b		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4			Void	
5			Void	
6		<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN-1
7		->	AUTHENTICATION AND CIPHERING RESPONSE	RES
8		<-	AUTHENTICATION AND CIPHERING REJECT	
8a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
9		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell B.
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
12	UE			Cell B is preferred by the MS.
13	UE			No ROUTING AREA UPDATE REQUEST sent to the SS (SS waits 30 seconds).
14	UE			The UE initiates an attach by MMI or by AT command.
15	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
16	UE			The UE is switched off (see ICS).
17	SS			No DETACH REQUEST sent to the SS (SS waits 30 seconds).
18				The UE is powered up or switched on and initiates an attach (see ICS). Step 19 is only performed for k =2
19	UE		Registration on CS	Parameter mobile identity is IMSI See TS 34.108
19a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20		->	ATTACH REQUEST	Attach type = 'PS only attached' Mobile identity = IMSI
20a		<-	AUTHENTICATION AND CIPHERING REQUEST	
20b		->	AUTHENTICATION AND CIPHERING RESPONSE	
20c		SS		The SS starts integrity protection.
21		<-	ATTACH ACCEPT	Attach result = 'PS attach' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4

22	->	ATTACH COMPLETE	
22a	SS		The SS releases the RRC connection.
23	UE		The UE is switched off or power is removed. (see ICS)
23a	SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
24	->	DETACH REQUEST	Message not sent if power is removed.
24a	SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
25	UE		If k=1 then the test is repeated for k=2.
NOTE: The definitions for "Non-Suitable celll" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.6.1.2.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE receives the AUTHENTICATION AND CIPHERING REJECT message, UE shall:

- not respond paging message for PS domain.

At step13, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- not perform normal routing area updating.

At step17, when the UE is switched off, UE shall:

- not perform PS detach procedure.

12.6.1.3 Authentication rejected by the UE

12.6.1.3.1 GMM cause 'MAC failure'

12.6.1.3.1.1 Definition

12.6.1.3.1.2 Conformance requirement

If the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'MAC failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.1.3 Test purpose

To test the behaviors of the UE, when the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid.

12.6.1.3.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

The MAC (Message Authentication Code) code, which is included in AUTHENTICATION AND CIPHERING REQUEST, is invalid value.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'MAC failure' to the SS.

The SS initiates an identification procedure, upon receipt of a failure message with reject cause 'MAC failure'.

After the identification procedure is complete, the SS re-initiates an authentication and ciphering procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note 1)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 25.
3	UE			
4				The following messages are sent and shall be received on cell A.
5	UE			The UE is powered up or switched on and initiates an attach (see ICS).
5a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
6	->		ATTACH REQUEST	Attach type = 'PS attach' Mobility identity = IMSI
7	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Invalid Message Authentication Code (MAC).
9	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
9a	<-		IDENTITY REQUEST	Identity type = IMSI
9b	->		IDENTITY RESPONSE	Mobile identity = IMSI
10	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CSKN-1
11	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
12		SS		The SS checks the RES value and starts integrity protection.
13			Void	
14			Void	
15			Void	
16	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	
17a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
18		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note 1)
18a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
19	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 PS-CKSN-1
20		SS		The SS checks the value of PS-CKSN and starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
22	->		ROUTING AREA UPDATE COMPLETE	

23 24	UE ->	 DETACH REQUEST	The UE is switched off or power is removed (see ICS). Message is not sent if power is removed. Detach type = 'power switched off, PS detach'
24a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
25	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 24.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.6.1.3.1.5 Test requirements

At step6, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information element specified in the above Expected Sequence.

At step9, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST with Invalid Message Authentication Code, UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS

At step11, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message (containing a valid MAC) from SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message to SS.

At step9b, when the UE receives the IDENTITY REQUEST message with Identity type = IMSI from SS, UE shall:

- send the IDENTITY RESPONSE message with Mobile identity = IMSI to SS.

12.6.1.3.2 GMM cause 'Synch failure'

12.6.1.3.2.1 Definition

12.6.1.3.2.2 Conformance requirement

If the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'Synch failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.2.3 Test purpose

To test the behaviors of the UE, when the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range.

12.6.1.3.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'synch failure' to the SS.

SS re-initiates an authentication and ciphering procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note 1)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 21.
				The following messages are sent and shall be received on cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobility identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. SQN is out of range.
6			Void	
7	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause = 'Synch failure' AUTS parameter
8		SS		set new authentication vectors. (re-synchronisation)
9	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CKSN-1
10	->		AUTHENTICATION AND CIPHERING RESPONSE	RES

Step	Direction		Message	Comments
	UE	SS		
11		SS		The SS checks the RES value and starts integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	
13a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note 1)
14a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1 PS-CKSN-1
16		SS		The SS checks the value of PS-CKSN and starts integrity protection
17	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-2
18	->		ROUTING AREA UPDATE COMPLETE	
19		UE		The UE is switched off or power is removed (see ICS).
20	->		DETACH REQUEST	Message is not sent if power is removed. Detach type = 'power switched off, PS detach'
20a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
21		UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 20.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.6.1.3.2.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information element specified in the above Expected Sequence.

At step7, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message(SQN is out of range.), UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'synch failure' to the SS

At step9, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message from SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message to SS.

At step15, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- perform routing area updating procedure.

12.6.1.3.3 Authentication rejected by the UE / fraudulent network

12.6.1.3.3.1 Definition

12.6.1.3.3.2 Conformance requirement

R99 and REL-4:

1. It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occur:

   - After sending the AUTHENTICATION & CIPHERING FAILURE message with GMM cause 'MAC failure' the timer T3318 expires;

   - Upon receipt of the second AUTHENTICATION & CIPHERING REQUEST message from the network while the T3318 is running and the MAC value cannot be resolved.

   When it has been deemed by the MS that the source of the authentication challenge is not genuine (authentication not accepted by the MS), the MS shall behave as described in 3GPP 24.008 clause 4.7.7.6.1.

2. In addition to the cases specified in subclause 4.7.7.6, the UE may deem that the network has failed the authentication check after any combination of three consecutive authentication failures, regardless whether 'MAC failure', 'invalid SQN', or 'GSM authentication unacceptable' was diagnosed. The authentication failures shall be considered as consecutive only, if the authentication challenges causing the second and third authentication failure are received by the UE, while the timer T3318 or T3320 started after the previous authentication failure is running.

   If the UE deems that the network has failed the authentication check, then it shall request RR or RRC to release the RR connection and the PS signalling connection, if any, and bar the active cell or cells (see 3GPP TS 25.331 and 3GPP TS 04.18).

Reference

3GPP TS 24.008 clause 4.7.7.6 (f) and 4.7.7.6.1.

REL-5 and later releases:

1. It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occurs:

   - after sending the AUTHENTICATION & CIPHERING FAILURE message with GMM cause 'MAC failure' the timer T3318 expires;

   - the MS detects any combination of the authentication failures: "MAC failure", "invalid SQN", and "GSM authentication unacceptable", during three consecutive authentication challenges. The authentication challenges shall be considered as consecutive only, if the authentication challenges causing the second and third authentication failure are received by the MS, while the timer T3318 or T3320 started after the previous authentication failure is running.

   When it has been deemed by the MS that the source of the authentication challenge is not genuine (authentication not accepted by the MS), the MS shall behave as described in 3GPP TS 24.008 subclause 4.7.7.6.1.

2. If the UE deems that the network has failed the authentication check, then it shall request RR or RRC to release the RR connection and the PS signalling connection, if any, and bar the active cell or cells (see 3GPP TS 25.331 and 3GPP TS 44.018).

Reference

3GPP TS 24.008 clause 4.7.7.6 (f) and 4.7.7.6.1.

12.6.1.3.3.3 Test purpose

R99 and REL-4

To test UE treating a cell as barred:

1. when the network sends the second or third AUTHENTICATION & CIPHERING REQUEST message with invalid MAC code during the timer T3318 is running.

2. when the timer T3318 has expired.

REL-5 or later release:

To test UE treating a cell as barred:

1. when the network sends the third AUTHENTICATION & CIPHERING REQUEST message with invalid MAC code during the timer T3318 is running.

2. when the timer T3318 has expired.

12.6.1.3.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1(RAI-1), cell B in MCC1/MNC1/LAC1/RAC2(RAI-2).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

Two cells are configured. Cell A transmits with higher power so that the UE attempts an attach procedure to cell A.

During the attach procedure, the SS initiates an authentication and ciphering procedure but it sends an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS repeats a second time the authentication procedure, again with an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message.

For R99 and REL-4: SS waits 30 seconds. If the UE sends an AUTHENTICATION AND CIPHERING FAILURE message during this time then the the SS repeats the authentication procedure a third time and then waits 30 seconds. The UE moves into idle mode and do not make any access attempt on Cell A.

For REL-5 or later relaese: The SS repeats a third time the authentication procedure, again with an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message. The UE moves into idle mode and do not make any access attempt on Cell A.

The UE shall attempt to attach to cell B. The SS initiates an authentication and ciphering procedure but it sends an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message. The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS waits for T3318 to expire.

The UE shall treat now both cells as barred and shall not attempt to access the network, even if the user triggers the UE to perform an attach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note) The following messages are sent and shall be received on cell A.
2	UE			The UE is powered up or switched on and initiates an attach procedure.
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobility identity = IMSI
4	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
5	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
6	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
7	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure' R99 and REL-4: In case message is not received within 30s then SS should continue from step 9.
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC). R99 and REL-4: Optional step
7b			Void	
8		SS		SS verifies that the UE does not attempt to access the network for 30s. R99 and REL-4: Optional step
9		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
				UE shall attempt an attach on cell B. The following messages are sent and shall be received on cell B.
10	UE			The UE initiates an attach by MMI or AT command.
11	->		ATTACH REQUEST	Attach type = 'PS attach' Mobility identity = IMSI
12	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
13	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
14		SS		SS waits T3318 (20s)
15		SS		SS verifies that the UE does not attempt to access the network for 30s.
16	UE			The UE initiates an attach by MMI or AT command.
17		SS		SS verifies that the UE does not attempt to access the network for 30s.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.6.1.3.3.5 Test requirements

At step3, when the UE is powered on or switched on, the UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

After step4, when the UE have received the first AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

For R99 and REL-4 UE:

Alternative 1:

- After step 6, when the UE have received the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

Alternative 2:

- After step6, when the UE have received the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) while the timer T3318 is running, the UE shall send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS; and

- After step 7a , when the UE have received the third AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

For REL-5 UE:

- After step 6, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) from the network while the timer T3318 is running, the UE shall send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS; and

- After step 7a, when the UE have received the third AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

At step 11, when the activated cell is changed from cell A to cell B, the UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

After step 12, when the UE have received the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step 17, when the timer T3318 have expired, the UE shall:

- not attempt to access the network.

12.6.2 Void

12.7 Identification procedure

The purpose of this procedure is to check that the UE gives its identity as requested by the network. If this procedure does not work, it will not be possible for the network to rely on the identity claimed by the UE.

12.7.1 General Identification

12.7.1.1 Definition

12.7.1.2 Conformance requirement

1) When requested by the network the User Equipment shall send its IMSI.

2) When requested by the network the User Equipment shall send its IMEI as stored in the Mobile Equipment.

3) When requested by the network the User Equipment shall send its IMEISV as stored in the Mobile Equipment.

Reference

3GPP TS 24.008 clauses 4.7.8

12.7.1.3 Test purpose

To verify that the UE sends identity information as requested by the system. The following identities can be requested: IMSI, IMEI and IMEISV.

12.7.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS requests identity information from the UE:

- IMSI
- IMEI
- IMEISV

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 14.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
4			Void	
5	<-		AUTHENTICATION AND CIPHERING REQUEST	
5a	->		AUTHENTICATION AND CIPHERING RESPONSE	
5b		SS		The SS starts ciphering and integrity protection.
6	<-		IDENTITY REQUEST	Identity type = IMSI
7	->		IDENTITY RESPONSE	Mobile identity = IMSI
8	<-		IDENTITY REQUEST	Identity type = IMEI
9	->		IDENTITY RESPONSE	Mobile identity = IMEI
10	<-		IDENTITY REQUEST	Identity type = IMEISV
11	->		IDENTITY RESPONSE	Mobile identity = IMEISV
11a	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
11b	->		ATTACH COMPLETE	
11c		SS		The SS releases the RRC connection.
12	UE			The UE is switched off or power is removed (see ICS).
12a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not received if power is removed).
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
13a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
14	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 13a.

Specific message contents

None.

12.7.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 12a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the SS requests an IMSI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMSI.

At step9, when the SS requests an IMEI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEI.

At step11, when the SS requests an IMEISV with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEISV.

12.8 GMM READY timer handling

12.8.1 Definition

12.8.2 Conformance requirement

If a READY timer value is received by an UE capable of both UMTS and GSM in the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, then the received value shall be stored by the UE in order to be used at an intersystem change from UMTS to GSM.

Reference

3GPP TS 24.008 clause 4.7.2.1

12.8.3 Test purpose

To verify that READY timer value received in UTRA can be used in GSM.

12.8.4 Method of test

12.8.4.1 Test procedure

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A (UTRAN) in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B (GSM) in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Cell B is in neigbour cell list of cell A.
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in cell A (UTRAN).
The value of ATT flag in SIB3 IE ìControl Channel Descriptionî is set to value ì0î in cell B (GSM).

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

UE supports both GSM/GPRS and UTRAN Radio Access Technologies Yes/No
UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs Yes/No

UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An attach is performed.

T3314; set to 60 seconds

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Cell B is switched off. (see note)
2	UE			The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C. The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 T3314 = 60 seconds T3312=6 minutes
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell".Set the cell type of cell B to the "Serving cell".
7	UE			UE establish cell reselection to GSM system
				The following messages are received on Cell B (GERAN)
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-2 signature Old Routing area identity = RAI-1
9	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
10	->		ROUTING AREA UPDATE COMPLETE	
11		SS		The SS verifies that the time between the end of Step 10 and the periodic RA updating is Ready Timer Period (T3314) + Periodic Routing Area Updating timer (T3312) (+/- 10%)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updatingí Mobile identity=P-TMSI-1 Old P-TMSI signature=P-TMSI-1 signature Old Routing area identity = RAI-4
13	<-		ROUTING AREA UPDATE ACCEPT	Update type = 'RA updated'
14	UE			UE is swithed off or power is removed (see ICS)
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'

NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.8.5 Test requirements

At step4, when the UE receives the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, UE shall:

- store the received READY timer value.

At step12, UE shall establish periodic Routing Area Update after Timer Period (T3314) + Periodic Routing Area Updating timer (T3312) (+/- 10%).

12.9 Service Request procedure (UMTS Only)

12.9.1 Service Request Initiated by UE Procedure

12.9.1.1 Definition

12.9.1.2 Conformance requirement

UE shall send the Service Request message to the network in order to establish the PS signalling connection for the upper layer signalling or for the resource reservation for active PDP context(s).

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.1

12.9.1.3 Test purpose

To test the behaviour of the UE if the UE initiates the CM layer service (e.g. SM or SMS) procedure.

12.9.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE in PMM-IDLE state sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receives the SERVICE REQUEST message, the SS performs authentication procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 12.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
6a	SS			The IE "Establishment cause" in the received RRC CONNECTION REQUEST message is not checked.
7	->		SERVICE REQUEST	Service type = "signalling",
8	<-		SERVICE REJECT	
9	->		Void	
9a	SS			The SS releases the RRC connection.
10	UE			The UE is switched off or power is removed (see ICS).
10a	SS			The SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST is set to "Detach" (not received if power is removed).
11	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
11a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
12	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 11a.

Specific message contents

None.

12.9.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 10a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the UE has any signalling message (e.g. for SM or SMS) that requires security protection, the UE shall:

- send the SERVICE REQUEST message with service type indicated "signalling".

12.9.2 Service Request Initiated by Network Procedure

12.9.2.1 Definition

12.9.2.2 Conformance requirement

When the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall send the SERVICE REQUEST message to the network.

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.2

12.9.2.3 Test purpose

To test the behavior of the UE if the UE receives the paging request for PS domain service from the network.

12.9.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE is in PMM-IDLE state. The SS pages the UE by sending a Paging message to the UE.

b) The UE sends a SERVICE REQUEST message to the SS. Service Type specifies Paging Response. The Service Request is carried over the radio in an RRC Direct Transfer message.

c) After the SS receives the SERVICE REQUEST message from the UE, SS initiates an authentication procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 12.
2	UE			The UE is powered up or switched in and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call"
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
7	->		SERVICE REQUEST	Service type = "Paging response"
8	<-		AUTHENTICATION AND CIPHERING REQUEST	
9	->		AUTHENTICATION AND CIPHERING RESPONSE	
9a	SS			SS starts integrity protection and releases the RRC connection.
10	UE			The UE is switched off or power is removed (see ICS).
10a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
11	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
11a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
12	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 11a.

Specific message contents

None.

12.9.2.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating interactive Call".

At step 10a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step 7, when the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall:

- send the SERVICE REQUEST message with service type indicated "paging response".

12.9.3 Service Request / rejected / Illegal MS

12.9.3.1 Definition

12.9.3.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Illegal MS", the UE shall:

1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and enter state GMM DEREGISTRATED. A UE operating in MS operation A shall in addition to set the update status to U3 ROAMING NOT ALLOWED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. A UE operating in MS operation A shall in addition delete any TMSI, LAI and ciphering key sequence number.
3) consider the USIM as invalid for PS service until switched off or the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.3.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Illegal MS".

12.9.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1, RAI-1 and IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #3(Illegal MS).

c) After the UE receives the SERVICE REJECT message with the cause value #3(Illegal MS), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

d) The SS checks that the UE does not initiate an upper-layer signalling until the power of the UE is switched off.

e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 38.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6			Void	
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "Illegal MS"
10	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
11	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds)
12	UE			The UE is switched off.
13			Void	
14	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
14a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
14b	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
15a	<-		AUTHENTICATION AND CIPHERING REQUEST	
15b	->		AUTHENTICATION AND CIPHERING RESPONSE	
15c	SS			The SS starts ciphering and integrity protection.
16	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
18	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		SERVICE REJECT	Reject cause = "Illegal MS"
21	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
22	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds)
23	UE			If possible (see ICS) USIM replacement is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed
24	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
25	UE			The UE initiates a PS attach, by MMI or by AT command.
25a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
26a	<-		AUTHENTICATION AND CIPHERING REQUEST	
26b	->		AUTHENTICATION AND CIPHERING RESPONSE	
26c	SS			The SS starts ciphering and integrity protection.
27	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
28	->		ATTACH COMPLETE	
29	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	->		SERVICE REQUEST	Service type = "signalling"
31	<-		SERVICE REJECT	Reject cause = "Illegal MS"
32			VOID	
33	SS		VOID	
34	SS			The SS releases RRC connection.
35	UE			The UE is switched off or power is removed (see ICS).
36			Void	
37	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
38	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 37.

Specific message contents

None.

12.9.3.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step22, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step26, when the UE gets the USIM replaced, is powered up or switched on,UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step30, UE shall:

- initiate the service request procedure.

12.9.4 Service Request / rejected / PS services not allowed

12.9.41 Definition

12.9.4.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PS services not allowed", the UE shall:

1) set the GPRS update state to GU3 ROAMING NOT ALLOWED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
3) consider the USIM as invalid for PS service until the UE is switched off or until the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.4.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PS service not allowed".

12.9.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #7(PS services not allowed).

c) After the UE receives the SERVICE REJECT message with the cause value #7(PS services not allowed), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

d) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.

e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 38.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Old P-TMSI signature=Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6			Void	
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "PS services not allowed"
10	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
11	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30seconds)
12	UE			The UE is switched off.
13			Void	
14	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
14a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
15a	<-		AUTHENTICATION AND CIPHERING REQUEST	
15b	->		AUTHENTICATION AND CIPHERING RESPONSE	
15c	SS			The SS starts ciphering and integrity protection.
16	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	
18	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		SERVICE REJECT	Reject cause = "PS services not allowed"

Step	Direction		Message	Comments
	UE	SS		
21	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
22	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30seconds)
23	UE			The UE gets the USIM replaced, is powered up or switched on.
24			Void	
25	UE			The UE initiates a PS attach, by MMI or by AT command.
25a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
26a	<-		AUTHENTICATION AND CIPHERING REQUEST	
26b	->		AUTHENTICATION AND CIPHERING RESPONSE	
26c	SS			The SS starts ciphering and integrity protection.
27	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
28	->		ATTACH COMPLETE	
29	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	->		SERVICE REQUEST	Service type = "signalling"
31	<-		SERVICE REJECT	Reject cause = "PS services not allowed"
32			VOID	
33	SS		VOID	
34	SS			The SS releases RRC connection.
35	UE			The UE is switched off or power is removed (see ICS).
36	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
37	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
38	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 37.

Specific message contents

12.9.4.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "PS services not allowed" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step22, when the UE receives the SERVICE REJECT message with cause "PS services not allowed" UE shall:

- not attempt to access the network.

At step26, when the UE gets the USIM replaced, is powered up or switched on,UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step30, UE shall:

- initiate the service request procedure.

12.9.5 Service Request / rejected / MS identity cannot be derived by the network

12.9.5.1 Definition

12.9.5.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "MS identity cannot be derived by the network", the UE shall:

1) set the GPRS update states to GU2 NOT UPDATED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
3) initiate the PS attach procedure automatically.

Reference

TS 24.008 clauses 4.7.13.4

12.9.5.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "MS identity cannot be derived by the network".

12.9.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #9 (MS identity cannot be derived by the network).

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 23.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6			Void	
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "MS identity cannot be derived by the network"
10	UE			The UE automatically initiates the PS attach procedure.
10a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts ciphering and integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature
13	->		ATTACH COMPLETE	
14	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
15	->		SERVICE REQUEST	Service type = "signalling"
16	<-		SERVICE REJECT	
17			VOID	
18	SS		VOID	.
19	SS			The SS releases RRC connection.
20	UE			The UE is switched off or power is removed (see ICS).
21	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
23	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 22.

Specific message contents

None.

12.9.5.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "MS identity cannot be derived by the network" UE shall:

- initiate PS attach procedure automatically.

12.9.6 Service Request / rejected / PLMN not allowed

12.9.6.1 Definition

12.9.6.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PLMN not allowed", the UE shall:

1) delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.

2) set the GPRS update status to GU3 ROAMING NOT ALLOWED.

3) store the PLMN identity in the appropriate forbidden list.

Reference

TS 24.008 clauses 4.7.13.4

12.9.6.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PLMN not allowed".

12.9.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN).
All two cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #11 (PLMN not allowed).

c) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.

d) The SS checks that the UE does not answer a Page from the SS until the power of the UE is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 24.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6			Void	
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "PLMN not allowed"
10	UE			The UE stores the PLMN identity in the "forbidden PLMN list".
11	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
12	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30second)
13	<-		PAGING TYPE1	Paging order is for PS service
14	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages shall be sent and shall be received on cell B.
15	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
16	UE			Cell B is preferred by the UE.
16a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
17a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
18a	<-		AUTHENTICATION AND CIPHERING REQUEST	

18b	->	AUTHENTICATION CIPHERING RESPONSE	AND	
18c	SS			The SS starts ciphering and integrity protection.
19	<-	ATTACH ACCEPT		~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-2 Attach result = 'PS only attached'
20	->	ATTACH COMPLETE		
21	UE			The UE is switched off or power is removed (see ICS).
22	->	DETACH REQUEST		Message not sent if power is removed. Detach type = 'power switched off, PS detach'
23	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
24	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 23.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.9.6.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE receives the SERVICE REJECT message with cause "PLMN not allowed", UE shall:

- not perform a PS attach procedure in the same PLMN.

At step13, when the UE receives the paging message for PS domain UE shall:

- not respond to the paging message for PS domain.

At step18, UE shall:

- perform PS attach procedure.

12.9.7a Service Request / rejected / No PDP context activated

12.9.7a.1 Definition

12.9.7a.2 Conformance requirement

If the network rejects a service request procedure with the cause "No PDP context activated", the UE shall:

- deactivate all active PDP contexts.

After the UE deactivates all active PDP contexts, UE shall:

- perform PDP context(s) activation.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No PDP context activated".

12.9.7a.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #40 (No PDP context activated).

c) After the UE receives the SERVICE REJECT message, the UE shall send the ACTIVATE PDP CONTEXT REQUEST message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1				The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 26.
2				The SS is set in network operation mode II and activates cell A.
3				The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	
6	->		ATTACH COMPLETE	
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		AUTHENTICATION AND CIPHERING REQUEST	
10	->		AUTHENTICATION AND CIPHERING RESPONSE	
11	SS			The SS initiates a security mode control procedure.
12	UE			After a PS call is established, the UE suspends transmission of the user data.
13	SS			The SS initiates a Radio Bearer release procedure.
14	UE			The UE resumes the transmission of the user data.
15	->		SERVICE REQUEST	Service type = "data"
16	<-		SERVICE REJECT	Reject cause = "No PDP context activated"
17	UE			The UE shall deactivate locally all active PDP contexts.
18	UE			The UE initiates a PS call, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		AUTHENTICATION AND CIPHERING REQUEST	
21	->		AUTHENTICATION AND CIPHERING RESPONSE	
21	SS			SS initiates a security procedure by sending SECURITY MODE COMMAND message.
22	UE			The UE is switched off or power is removed (see ICS).
23	UE			The UE initiates Detach request, by MMI or by AT command.
24	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
25	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
26	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25.

Specific message contents

None.

12.9.7a.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure.

When the UE receives a SERVICE REJECT message with the cause "No PDP context activated", UE shall:

- deactivate all active PDP context.

At step15, UE shall:

- initiates a Service request procedure by sending a SERVICE REJECT message with Service type = "data".

12.9.7b Service Request / rejected / No Suitable Cells In Location Area

12.9.7b.1 Definition

12.9.7b.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "No Suitable Cells In Location Area", the UE shall:

1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall change to state GMM-REGISTERED.LIMITED-SERVICE.

2) store the LAI in the list of 'forbidden location areas for roaming'.

If no RRC connection exists, the UE shall perform the following additional actions immediately. If the UE is operating in operation mode A and an RRC connection exists, the UE shall perform these actions when the RRC connection is subsequently released:

1) if the UE is IMSI attached, the UE shall set the update status to U3 ROAMING NOT ALLOWED and shall reset the location update attempt counter. The new MM state is MM IDLE.

2) search for a suitable cell in a different location area on the same PLMN.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No Suitable Cells In Location Area".

12.9.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform routing area updating procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 15.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
2a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
2b	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = "PS attach" Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature MS~~Mobile~~ identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	SS			The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = 'signalling'
9	<-		SERVICE REJECT	Reject cause = 'No Suitable Cells In Location Area'
9a	SS			The SS releases the RRC connection The following message are sent and shall be received on cell B.
9b	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
9c	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Old P-TMSI signature=P-TMSI-1 signature Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
10a	<-		AUTHENTICATION AND CIPHERING REQUEST	
10b	->		AUTHENTICATION AND CIPHERING RESPONSE	
10c	SS			The SS starts ciphering and integrity protection.
11	<-		ROUTING AREA UPDATE ACCEPT	~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-3 Update result = 'RA updated'

12	->	ROUTING AREA UPDATE COMPLETE	
13	UE		The UE is switched off or power is removed (see ICS).
13a		IMSI DETACH INDICATION	Message not sent if power is removed This is applicable only for UE in UE operation mode A.
14	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
15	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 14.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.9.7b.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step10, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.9.7c Service Request / rejected / Roaming not allowed in this location area

12.9.7c.1 Definition

12.9.7c.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Roaming not allowed in this location area", the UE shall:

1) set the PS update status to GU3 ROAMING NOT ALLOWED
2) store the LAI in the list of "forbidden location areas for roaming".
3) perform a PLMN selection.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7c.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Roaming area not allowed in this location area".

12.9.7c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'Roaming not allowed in this location area'. The SS checks that the UE shall not perform PS attach procedure when the UE enters a different location area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 19.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1
6		SS		The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "roaming not allowed in this location area"
9a		SS		The SS releases the RRC connection.
10	UE			The UE performs PLMN selection.
11		SS		Set the cell type of cell A to the " Non-Suitable cell". Set the cell type of cell B to the " Serving cell". (see note)
12		SS		The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
13		SS		Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the " Serving cell". (see note) The following messages are sent and shall be received on cell C.
13a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
14	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
14a	<-		AUTHENTICATION AND CIPHERING REQUEST	
14b	->		AUTHENTICATION AND CIPHERING RESPONSE	
14c		SS		The SS starts integrity protection.

15	<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA update' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature MS~~Mobile~~ identity = TMSI-2 Routing area identity = RAI-2
16	->	ROUTING AREA UPDATE COMPLETE	
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
18a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 3 to step 18.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.9.7c.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step12, when the UE enters a same location area, UE shall:

- not initiate the combined PS attach procedure.

At step14, when the UE enters a different location area, UE shall:

- initiate the routing area updating procedure with information elements specified in the above Expected Sequence.

12.9.8 Service Request / Abnormal cases / Access barred due to access class control

12.9.8.1 Definition

12.9.8.2 Conformance requirement

If the UE access class X is barred, the UE shall:

1) not start Service Request procedure.
2) stay in the current serving cell.
3) applie normal cell reselection process.

If the UE access class X is granted or serving cell is changed, the UE shall:

1) start Service Request procedure.

Reference

TS 24.008 clauses 4.7.13.5.

12.9.8.3 Test purpose

To test the behavior of the UE in case of access class control (access is granted).

12.9.8.4 Method of test

Initial condition

A random access class X (0-15) is selected. The USIM is programmed with this access class X.

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS initiates access class X barred. A service request procedure is not performed.

The SS initiates that access class X is not barred. A service request procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 15.
1a	UE			The UE is powered up or switched on and attempt to initiate an ATTACH. (see ICS)
2			Void	
3			Void	
4	UE			The UE automatically initiates an attach.
4a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
5	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
5a	<-		AUTHENTICATION AND CIPHERING REQUEST	
5b	->		AUTHENTICATION AND CIPHERING RESPONSE	
5c	SS			The SS starts ciphering and integrity protection.

6	<-	ATTACH ACCEPT	Attach result = 'PS only attached' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-1
7	->	ATTACH COMPLETE	
7a	SS		The access class x is barred in cell A
8	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8a	UE		No SERVICE REQUEST sent to SS, as access class x is barred. SS waits 30 seconds
8b	SS		The access class x is not barred any more
9	->	SERVICE REQUEST	Service Type = "signalling".
10	<-	SERVICE REJECT	
11		VOID	
11a	SS		The SS releases the RRC connection.
12	UE		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
15	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 1a to step 14.

Specific message contents

None.

12.9.8.5 Test requirements

At step 8a, when the UE access class x is barred, UE shall:

- not perform Service Request procedure.

At step9, UE shall:

- perform Service Request procedure.

12.9.9 Service Request / Abnormal cases / Routing area update procedure is triggered

12.9.9.1 Definition

12.9.9.2 Conformance requirement

If a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode control procedure is completed, the UE shall:

- abort Service request procedure.
- start routing area update procedure immediately.

Reference

TS 24.008 clause 4.7.13.5

12.9.9.3 Test purpose

To test the behavior of the UE in case of collision between Routing area update procedure and Service request procedure.

12.9.9.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling in cell A.

b) The SS changes the conditions of cell A so that it is no longer a suitable ì Serving cellî .

c) The UE aborts Service request procedure and performs Routing area updating procedure.

d) The UE re-sends the SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling, this time in cell B

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 22.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6			Void	
6a	UE			The UE initiates upper-layer signalling, e.g., Activate PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling"
8	SS			The RF level of cell A is lowered until the level corresponds to that of a ìNon-suitable cellî. Note: the SS does not initiate the security mode control procedure.
9	UE			The UE aborts Service request procedure.
				The following message are sent and shall be received on cell B.
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating'
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' ~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-1 P-TMSI Signature = P-TMSI-1 signature Routing area identity = RAI-4
12	->		ROUTING AREA UPDATE COMPLETE	
13	UE			The UE initiates upper-layer signalling, e.g., Activate PDP Context request, either automatically or by MMI or by AT command.
14	->		SERVICE REQUEST	Service type = "signalling"
15	<-		AUTHENTICATION AND CIPHERING REQUEST	
16	->		AUTHENTICATION AND CIPHERING RESPONSE	
17	SS			The SS initiates a security mode control procedure.
18	SS			After the security mode control procedure is completed, the SS releases RRC connection.
19	UE			The UE is switched off or power is removed (see ICS).
20	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

21	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message has been received within 1 second then the SS shall consider the UE as switched off.
22	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 21.
NOTE: The definitions for "Suitable neighbour cell", ìNon-suitable cellî and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.9.9.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step7, UE shall:

- perform the service request procedure.

At steps 9 and 10, after the SS sets the cell type of cell A to ìNon-suitable cellî before the security mode control procedure is completed, UE shall;

- abort the Service request procedure
- perform the routing area updating procedure.

At step14, after the UE completes the routing area updating procedure, UE shall;

- restart the Service Request procedure.

12.9.10 Service Request / Abnormal cases / Power off

12.9.10.1 Definition

12.9.10.2 Conformance requirement

When the UE in GMM-SERVICE-REQUEST-INITIATED state is switched off, UE shall:

- perform PS detach procedure.

Reference

TS 24.008 clauses 4.7.13.5

12.9.10.3 Test purpose

To test the behavior of the UE in case of collision between Service request procedure and "powered off".

12.9.10.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

The UE is switched off after initiating a Service request procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 11.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling"
8	UE			The UE is powered off and initiates a PS detach (with power off) by MMI or by AT command.
9	->		DETACH REQUEST	Detach type = 'power switched off, PS detach'
10	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
11	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 10.

Specific message contents

None.

12.9.10.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, UE shall:

- perform the service request procedure

At step9, when the UE is switched off during the Service Request procedure, UE shall;

- abort the Service request procedure.

- perform the PS detach procedure.

12.9.11 Service Request / Abnormal cases / Service request procedure collision

12.9.11.1 Definition

12.9.11.2 Conformance requirement

Abnormal cases in the MS

The following abnormal cases can be identified:

- Procedure collision

  If the MS receives a DETACH REQUEST message from the network in state GMM-SERVICE-REQUEST-INITIATED, the GPRS detach procedure shall be progressed and the Service request procedure shall be aborted. If the cause IE, in the DETACH REQUEST message, indicated a "reattach request", the GPRS attach procedure shall be performed.

Reference

TS 24.008 clauses 4.7.13.5

12.9.11.3 Test purpose

To test the behaviour of the UE in case of collision between Service request procedure and PS detach procedure.

12.9.11.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) The SS does not respond to the SERVICE REQUEST for data. Instead it sends a DETACH REQUEST message to the UE, with the Detach type IE set to value "re-attach required".

c) After the UE receives the DETACH REQUEST message, the repeats the attach procedure.

d) The UE is switched off or power is removed. If the UE is switched off it sends a DETACH REQUEST.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 17.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6			Void	
7a	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7b	->		SERVICE REQUEST	Service type ="signalling"
7c	SS			The SS starts ciphering and integrity protection.
7d	SS			The SS initiates a Radio Bearer release procedure.
7e	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "data"
9	SS			The SS does not respond to SERVICE REQUEST message.
10	<-		DETACH REQUEST	Detach type = "re-attach required"
10a	->		DETACH ACCEPT	
11	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Old Routing area identity = RAI-1
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts ciphering and integrity protection.
12	<-		ATTACH ACCEPT	~~Mobile identity = P-TMSI~~Allocated P-TMSI = P-TMSI-2 P-TMSI Signature = P-TMSI-2 signature Routing area identity = RAI-1 Attach result = 'PS only attached'
13	->		ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
16	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

17	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 16.

Specific message contents

None.

12.9.11.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives a DETACH REQUEST message from the network before the Service request procedure completes, UE shall;

- repeat the attach procedure.
- retry the Service request procedure

At step 19 if the UE is switched off, UE shall:

- perform the PS detach procedure.

12.9.12 Service Request / RAB re-establishment / UE initiated / Single PDP context

12.9.12.1 Definition

12.9.12.2 Conformance requirement

The following procedures shall be performed in the MS when radio coverage is lost:

- For a PDP context using background or interactive traffic class, the PDP context is preserved even if RRC re-establishment procedures have failed.
- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink) when the RRC re-establishment procedure has failed. After coverage is regained and if the MS did not deactivate the PDP Context locally the MS should start MS-initiated PDP Context Modification procedure or the PDP Context Deactivation procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.
- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

The MS initiates the re-establishment of RABs by using the Service Request (Service Type = Data) message.

The criteria to invoke the Service request procedure are when;

b) the MS, either in PMM-IDLE or PMM-CONNECTED mode, has pending user data to be sent and no radio access bearer is established for the corresponding PDP context. The procedure is initiated by an indication from the lower layers (see 3GPP TS 24.007). In this case, the service type shall be set to "data".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.12.3 Test purpose

To verify that the UE initiates a Service request procedure due to uplink data transmission with one preserved PDP context with traffic class "Background class" after normal RRC connection release as well as when radio coverage is lost.

To verify that the radio access bearer can be re-established for the preserved PDP context, initiated by the UE.

12.9.12.4 Method of test

Initial condition

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service Yes/No

Test procedure

a) A PDP context with traffic class "Background class" is activated including the radio access bearer.

b) The SS releases the RRC connection, but keeps the PDP context.

c) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

d) The SS responds with a SERVICE ACCEPT message and establishes the RAB for the active PDP context using a Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

e) The SS configured the cell as a non-suitable "Off" cell for 4 minutes, making the UE to release the RAB and enter idle mode due to that radio coverage is lost.

f) The SS configures the cell as a serving cell.

g) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

h) The SS responds with a SERVICE ACCEPT message and establishes the RAB for the active PDP context using a Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3	SS			The SS starts ciphering and integrity protection and establishes the radio access bearer.
4	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5	SS			The SS releases the RRC connection
6	UE			The UE initiates transmission of uplink data, by MMI or by AT command.
7	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Background Call".
8	→		SERVICE REQUEST	Service type = "data"
9	SS			The SS starts ciphering and integrity protection.
10	SS			The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.
11	SS			The SS configures the cell as a non-suitable "Off" cell and waits for 4 minutes, making the UE to release the RAB and enter idle mode.
12	SS			The SS configures the cell as a serving cell.
13	UE			The UE initiates transmission of uplink data, by MMI or by AT command.
14	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Background Call".
15	→		SERVICE REQUEST	Service type = "data"
16	SS			The SS starts ciphering and integrity protection.
17	SS			The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.

Specific message contents

None.

12.9.12.5 Test requirements

After steps 7 and 14, UE shall:

- transmit a SERVICE REQUEST message with service type "data"

12.9.13 Service Request / RAB re-establishment / UE initiated / multiple PDP contexts

12.9.13.1 Definition

12.9.13.2 Conformance requirement

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.

- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

The MS initiates the re-establishment of RABs by using the Service Request (Service Type = Data) message.

The criteria to invoke the Service request procedure are when;

b) the MS, either in PMM-IDLE or PMM-CONNECTED mode, has pending user data to be sent and no radio access bearer is established for the corresponding PDP context. The procedure is initiated by an indication from the lower layers (see 3GPP TS 24.007). In this case, the service type shall be set to "data".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.13.3 Test purpose

To verify that the UE initiates a Service request procedure due to uplink data transmission with two PDP contexts with different traffic classes are activated, when one is of traffic class "background class" and the other is of traffic class "interactive class", after normal RRC connection release.

To verify that the radio access bearers can be re-established with a single radio bearer establishment procedure for the preserved PDP contexts, when initiated by the UE.

12.9.13.4 Method of test

Initial condition

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service	Yes/No
Secondary PDP context activation procedure	Yes/no

Test procedure

a) Two PDP contexts with different Traffic Classes are activated including the radio access bearers.

b) The SS releases the RRC connection, but keeps the two PDP contexts.

c) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

d) The SS responds with a SERVICE ACCEPT message and establishes the RABs for the two active PDP contexts using a single Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3		SS		The SS starts ciphering and integrity protection and establishes the radio access bearer.
4	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5	UE			Initiate a secondary PDP context activation
6	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request a Secondary PDP context activation with traffic class "Interactive class"
7		SS		The SS establishes the radio access bearer.
8	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	Accept the Secondary PDP context activation
9		SS		The SS releases the RRC connection.
10	UE			The UE initiates transmission of uplink data, by MMI or by AT command.
11		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Interactive Call", which is the most demanding traffic class among the active PDP contexts.
12	→		SERVICE REQUEST	Service type = "data"
13		SS		The SS starts ciphering and integrity protection.
14		SS		The SS establishes the radio access bearers simultaneously for the two active PDP contexts, using the same QoS that was used at activation.

Specific message contents

None.

12.9.13.5 Test requirements

After step 11, UE shall:

- transmit a SERVICE REQUEST message with service type "data".

12.9.14 Service Request / RAB re-establishment / Network initiated / single PDP context

12.9.14.1 Definition

12.9.14.2 Conformance requirement

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.

- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

When RABs for an MS that has no RRC connection needs to be re-established, the CN must first page the MS.

The criteria to invoke the Service request procedure are when;

c) the MS receives a paging request for PS domain from the network in PMM-IDLE mode. In this case, the service type shall be set to "paging response".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.14.3 Test purpose

To verify that the radio access bearers can be re-established for the preserved PDP context with traffic class "Background class", when initiated from the network, after normal RRC connection release.

12.9.14.4 Method of test

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service Yes/No

Test procedure

a) A PDP context with traffic class "Background class" is activated including the radio access bearer.

b) The SS releases the RRC connection, but keeps the PDP context.

c) The SS initiates paging of the UE.

d) As response to the paging, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

e) The SS responds with a SERVICE ACCEPT message and establishes the RAB for the active PDP context using the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3		SS		The SS starts ciphering and integrity protection and establishes the radio access bearer.
4	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5		SS		The SS releases the RRC connection.
6		SS		The SS waits for 5 s to ensure the UE is in service.
7	←		PAGING TYPE 1	The SS initiates paging of the UE using the paging cause "Terminating Background Call"'
8		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to the same value as the paging cause.
9	→		SERVICE REQUEST	Service type = "Paging response"
10		SS		The SS starts ciphering and integrity protection.
11		SS		The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.

Specific message contents

None.

12.9.14.5 Test requirements

After step 8, UE shall:

- transmit a SERVICE REQUEST with service type "Paging response"

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CHANGE REQUEST

⌘ **34.123-1** **CR** 1011 ⌘ **rev** - ⌘ Current version: 5.9.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Approved GCF P4 NAS Test Case 12.9.7c
Source:	⌘	Anritsu Ltd
Work item code:	⌘	N/A
Date:	⌘	22/10/04
Category:	⌘	**F**
Release:	⌘	REL - 5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	1. At step 18, the detach type should be ìPS Detachî because the attached type was ìPS Attachî in step 4
Summary of change:	⌘	In clause 12.9.7c.4, 1. Step 18, changed detach type from ìCombined CS/PS Detachî to ìGPRS Detachî
Consequences if not approved:	⌘	Prose and TTCN will not be consistent and will fail validation.

Clauses affected:	⌘	12.9.7c.4			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	No change to the current TTCN will be required.			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

12.9.7c Service Request / rejected / Roaming not allowed in this location area

12.9.7c.1 Definition

12.9.7c.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Roaming not allowed in this location area", the UE shall:

1) set the PS update status to GU3 ROAMING NOT ALLOWED
2) store the LAI in the list of "forbidden location areas for roaming".
3) perform a PLMN selection.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7c.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Roaming area not allowed in this location area".

12.9.7c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)
All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'Roaming not allowed in this location area'. The SS checks that the UE shall not perform PS attach procedure when the UE enters a different location area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
	SS			The following messages are sent and shall be received on cell A.
1	SS			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 19.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1
6	SS			The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8		->	SERVICE REQUEST	Service type = "signalling"
9		<-	SERVICE REJECT	Reject cause = "roaming not allowed in this location area"
9a	SS			The SS releases the RRC connection.
10	UE			The UE performs PLMN selection.
11	SS			Set the cell type of cell A to the " Non-Suitable cell". Set the cell type of cell B to the " Serving cell". (see note)
12	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
13	SS			Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the " Serving cell". (see note)
				The following messages are sent and shall be received on cell C.
13a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
14		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
14a		<-	AUTHENTICATION AND CIPHERING REQUEST	
14b		->	AUTHENTICATION AND CIPHERING RESPONSE	
14c	SS			The SS starts integrity protection.
15		<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA update' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-2

16	->	ROUTING AREA UPDATE COMPLETE	
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS Detach'~~combined PS / IMSI detach~~'
18a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 3 to step 18.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.9.7c.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step12, when the UE enters a same location area, UE shall:

- not initiate the combined PS attach procedure.

At step14, when the UE enters a different location area, UE shall:

- initiate the routing area updating procedure with information elements specified in the above Expected Sequence.

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Malta, 1- 5 November 2004

Tdoc ⌘T1-041924
Agenda 8.8.7

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1012** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections to high priority GMM test case 12.9.9
Source:	⌘	Motorola & Ericsson
Work item code:	⌘	TEI
Date:	⌘	02/11/2004
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	**T1-041627** Test sequence does not test conformance requirement applicable for this test in 24.008 section 4.7.13.5 ìIf a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode control procedure is completed, a SERVICE ACCEPT or SERVICE REJECT message has been received, the Service request procedure shall be aborted and the routing area updating procedure is started immediately.î Current test sequence simulates the case of Service Request procedure being aborted according to a 'lower layer failure' instead of 'RAU procedure triggered'. **Additional Change** Reinitiation of service request is a ëmayí requirement as per the core spec. Test procedure and sequence goes beyond testing of conformance requirements.
Summary of change:	⌘	**T1-041627** Initial condition in SS changed to one cell. Update test procedure, test sequence and test requirements with change of RA simulated using UTRAN Mobility Information message. **Additional Change** Removed steps 13 to 18 verifying restart of Service Request procedure.
Consequences if not approved:	⌘	Test as specified does not test the core spec requirement. Test may incorrectly fail a conformant UE.

Clauses affected:	⌘	12.9.9

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	This CR applies to R99 and later releases			

How to create CRs using this form:

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

12.9.9 Service Request / Abnormal cases / Routing area update procedure is triggered

12.9.9.1 Definition

12.9.9.2 Conformance requirement

If a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode control procedure is completed, the UE shall:

- abort Service request procedure.
- start routing area update procedure immediately.

Reference

TS 24.008 clause 4.7.13.5

12.9.9.3 Test purpose

To test the behavior of the UE in case of collision between Routing area update procedure and Service request procedure.

12.9.9.4 Method of test

Initial condition

System Simulator:

One cell with MCC1/MNC1/LAC1/RAC1 (RAI-1)
The cell is operating in network operation mode II .~~Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).~~
~~Both cells are operating in network operation mode II.~~
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00". ~~in both cells~~

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling in cell A.

b) The SS conveys change of routing area code to the UE.~~changes the conditions of cell A so that it is no longer a suitable ì Serving cellî~~.

c) The UE aborts Service request procedure and performs Routing area updating procedure.

d) ~~The UE re-sends the SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling, this time in cell B~~

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 22.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". ~~Set the cell type of cell B to the "Suitable neighbour cell".~~ (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6	SS		~~Void~~	UE is moved to PMM Idle. The SS releases the RRC connection.
6a	UE			The UE initiates upper-layer signalling, e.g., Activate PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling"
8	<-~~SS~~		UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code. Note: SS transmits the updated system information with the new RAI information in SIB1~~The RF level of cell A is lowered until the level corresponds to that of a 'Non suitable cell'. Note: the SS does not initiate the security mode control procedure.~~
8a	->		UTRAN MOBILITY INFORMATION CONFIRM	
9	UE			The UE aborts Service request procedure.
				~~The following message are sent and shall be received on cell B.~~
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating'
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
12	->		ROUTING AREA UPDATE COMPLETE	
13	~~UE~~		Void	~~The UE initiates upper-layer signalling, e.g., Activate PDP Context request, either automatically or by MMI or by AT command.~~
14	~~->~~		~~SERVICE REQUEST~~Void	~~Service type = "signalling"~~
15	~~<-~~		~~AUTHENTICATION AND CIPHERING REQUEST~~Void	
16	~~->~~		~~AUTHENTICATION AND CIPHERING RESPONSE~~Void	
17	~~SS~~		Void	~~The SS initiates a security mode control procedure.~~

18 19 20	~~SS~~ UE ->	Void DETACH REQUEST	~~After the security mode control procedure is completed, the SS releases RRC connection.~~ The UE is switched off or power is removed (see ICS). Message not sent if power is removed. Detach type = 'power switched off, PS detach'
21	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message has been received within 1 second then the SS shall consider the UE as switched off.
22	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 21.
NOTE: The definitions for "Suitable neighbour cell", ìNon-suitable cellî and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

~~None.~~

UTRAN MOBILITY INFORMATION (step 8)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	**Value/remark**
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	Infinity
- ATT	0
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	1 (Network Mode of Operation II)
- CN domain specific DRX cycle length coefficient	7

12.9.9.5 Test requirements

At step 4, the UE shall send an ATTACH REQUEST message

At step 7, the UE shall send a SERVICE REQUEST message with Service type = "signalling".

~~At step3, when the UE is powered on or switched on, UE shall:~~

~~- initiate the PS attach procedure with information elements specified in the above Expected Sequence .~~

~~At step7, UE shall:~~

~~- perform the service request procedure.~~

At step 8, as the UE has received a new RAI in the UTRAN MOBILITY INFORMATION message before the SERVICE ACCEPT message or the SERVICE REJECT message is received, the UE shall abort service request procedure.

At step 10, the UE shall send a ROUTING AREA UPDATE REQUEST message.

~~At steps 9 and 10, after the SS sets the cell type of cell A to ì Non-suitable cellî before the security mode control procedure is completed, UE shall;~~

- ~~abort the Service request procedure~~
- ~~perform the routing area updating procedure.~~

~~At step14, after the UE completes the routing area updating procedure, UE shall;~~

- ~~restart the Service Request procedure.~~

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st-5th November 2004

Tdoc ⌘T1-041925

CR-Form-v7.1

CHANGE REQUEST

⌘ **34.123-1** **CR** **1013** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to GCF Package 1 GMM test cases 12.9.1.(Revision of T1-041642)
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	02/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	1.) In TCs 12.9.1 (P1) SERVICE REJECT in expected sequence step 8 has no cause value specified. When the cause value is "GPRS services not allowed" then no DETACH will be sent in step 11.
Summary of change:	⌘	1.) Cause value ìGPRS services not allowed" added in SERVICE REJECT in expected sequence step 8 and steps 10a to 11a marked as Void.
Consequences if not approved:	⌘	Error in the test cases, might fail a conformant UE.

Clauses affected:	⌘	12.9.1

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments:	⌘	The proposed change aligns with the TTCN.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

12.9.1 Service Request Initiated by UE Procedure

12.9.1.1 Definition

12.9.1.2 Conformance requirement

UE shall send the Service Request message to the network in order to establish the PS signalling connection for the upper layer signalling or for the resource reservation for active PDP context(s).

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.1

12.9.1.3 Test purpose

To test the behaviour of the UE if the UE initiates the CM layer service (e.g. SM or SMS) procedure.

12.9.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE in PMM-IDLE state sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receives the SERVICE REQUEST message, the SS performs authentication procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 12.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
6a	SS			The IE "Establishment cause" in the received RRC CONNECTION REQUEST message is not checked.
7	->		SERVICE REQUEST	Service type = "signalling",
8	<-		SERVICE REJECT	Reject cause = "GPRS services not allowed"
9	->		Void	
9a	SS			The SS releases the RRC connection.
10	UE			The UE is switched off or power is removed (see ICS).
10a	~~SS~~		Void	~~The SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST is set to "Detach" (not received if power is removed).~~
11	~~->~~		Void~~DETACH REQUEST~~	~~Message not sent if power is removed.~~ ~~Detach type = 'power switched off, PS detach'~~
11a	~~SS~~		Void	~~The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.~~
12	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 11a.

Specific message contents

None.

12.9.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 10a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the UE has any signalling message (e.g. for SM or SMS) that requires security protection, the UE shall:

- send the SERVICE REQUEST message with service type indicated "signalling".

3GPP TSG-T1 Meeting #25
Malta, 1st-5th Nov, 2004

Tdoc ⌘T1-041928

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1014** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to GMM test cases in clause 12.9 (Revision of T1-041918)
Source:	⌘	Sony Ericsson, Sasken
Work item code:	⌘	TEI
Date:	⌘	01/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘ It is necessary to correct the Expected sequence in subclause 12.9

1. For subclause 12.9.3, 12.9.4, 12.9.5, 12.9.6, 12.9.7a, 12.9.8, 12.9.10, 12.9.11
-There are no test steps to verify behaviour of a UE on RRC layer in the current Expected sequence.

-To add a comment that UE is moved to PMM idle when the SS releases RRC connection because there is an ambiguity in a part of the above mentioned test steps.

2. For subclause 12.9.3, 12.9.4
There is a redundant procedure in the current Expected sequence.

3. For subclause 12.9.5
In TC 12.9.5 at step 16 reject cause value is not specified. Also as per above mentioned reason 2, at step 21 UE will not send DETACH REQUEST and at step 22 SS shouldnít release nonexisting RRC connection.

Summary of change: ⌘ 1. For subclause 12.9.3, 12.9.4, 12.9.5, 12.9.6, 12.9.7a, 12.9.8, 12.9.10, 12.9.11
-Test steps for behaviour of a UE on RRC layer are added in the Expected sequence because the current Expected sequence is not considered for the behaviour of the UE on RRC layer.

-ìUE is moved to PMM idleî is added in the comment to applicable test steps.

2. For subclause 12.9.3, 12.9.4
In 12.9.3 step 37 is marked as void
In 12.9.4, The detach procedure for PS services is removed from the Expected

		sequence because the UE is not allowed by the SS to perform PS services after receiving SERVICE REJECT with ìGPRS services not allowedî at step31. 3. For subclause 12.9.5 In TC 12.9.5, at step 16 cause value is specified as ìGPRS services not allowedî. Step 21 and 22 are marked as void
Consequences if not approved:	⌘	Test cases are left incorrect.

Clauses affected:	⌘	12.9.3, 12.9.4, 12.9.5, 12.9.6, 12.9.7a, 12.9.8, 12.9.10, 12.9.11			
Other specs Affected:	⌘	Y / N			
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of Modification>

12.9.3 Service Request / rejected / Illegal MS

12.9.3.1 Definition

12.9.3.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Illegal MS", the UE shall:

1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and enter state GMM DEREGISTRATED. A UE operating in MS operation A shall in addition to set the update status to U3 ROAMING NOT ALLOWED.

2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. A UE operating in MS operation A shall in addition delete any TMSI, LAI and ciphering key sequence number.

3) consider the USIM as invalid for PS service until switched off or the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.3.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Illegal MS".

12.9.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1, RAI-1 and IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #3(Illegal MS).

c) After the UE receives the SERVICE REJECT message with the cause value #3(Illegal MS), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

d) The SS checks that the UE does not initiate an upper-layer signalling until the power of the UE is switched off.

e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 38.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6	SS		~~Void~~	UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "Illegal MS"
9a	SS			The SS releases the RRC connection
10	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
11	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds)
12	UE			The UE is switched off.
13			Void	
14	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
14a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
14b	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
15a	<-		AUTHENTICATION AND CIPHERING REQUEST	
15b	->		AUTHENTICATION AND CIPHERING RESPONSE	
15c	SS			The SS starts ciphering and integrity protection.
16	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
17a		SS		UE is moved to PMM idle. (The SS releases the RRC connection)
18	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		SERVICE REJECT	Reject cause = "Illegal MS"
20a		SS		The SS releases the RRC connection
21	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
22		SS		The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds)
23	UE			If possible (see ICS) USIM replacement is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed
24	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
25	UE			The UE initiates a PS attach, by MMI or by AT command.
25a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
26a	<-		AUTHENTICATION AND CIPHERING REQUEST	
26b	->		AUTHENTICATION AND CIPHERING RESPONSE	
26c		SS		The SS starts ciphering and integrity protection.
27	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
28	->		ATTACH COMPLETE	
28a		SS		UE is moved to PMM idle. (The SS releases the RRC connection)
29	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	->		SERVICE REQUEST	Service type = "signalling"
31	<-		SERVICE REJECT	Reject cause = "Illegal MS"
32			VOID	
33	~~SS~~		VOID	
34		SS		The SS releases RRC connection.
35	UE			The UE is switched off or power is removed (see ICS).
36			Void	
37	~~SS~~		Void	~~The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.~~
38	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 37.

Specific message contents

None.

12.9.3.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step22, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step26, when the UE gets the USIM replaced, is powered up or switched on,UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step30, UE shall:

- initiate the service request procedure.

12.9.4 Service Request / rejected / PS services not allowed

12.9.41 Definition

12.9.4.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PS services not allowed", the UE shall:

1) set the GPRS update state to GU3 ROAMING NOT ALLOWED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
3) consider the USIM as invalid for PS service until the UE is switched off or until the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.4.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PS service not allowed".

12.9.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #7(PS services not allowed).

c) After the UE receives the SERVICE REJECT message with the cause value #7(PS services not allowed), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

d) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.

e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 38.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6	SS		~~Void~~	UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "PS services not allowed"
9a	SS			The SS releases the RRC connection
10	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
11	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30seconds)
12	UE			The UE is switched off.
13			Void	
14	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
14a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
15a	<-		AUTHENTICATION AND CIPHERING REQUEST	
15b	->		AUTHENTICATION AND CIPHERING RESPONSE	
15c	SS			The SS starts ciphering and integrity protection.
16	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	
17a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
18	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.

Step	Direction		Message	Comments
	UE	SS		
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		SERVICE REJECT	Reject cause = "PS services not allowed"
20a	SS			The SS releases the RRC connection
21	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
22	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30seconds)
23	UE			The UE gets the USIM replaced, is powered up or switched on.
24			Void	
25	UE			The UE initiates a PS attach, by MMI or by AT command.
25a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
26a	<-		AUTHENTICATION AND CIPHERING REQUEST	
26b	->		AUTHENTICATION AND CIPHERING RESPONSE	
26c	SS			The SS starts ciphering and integrity protection.
27	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
28	->		ATTACH COMPLETE	
28a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
29	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	->		SERVICE REQUEST	Service type = "signalling"
31	<-		SERVICE REJECT	Reject cause = "PS services not allowed"
32			VOID	
33	~~SS~~		VOID	
34	SS			The SS releases RRC connection.
35	UE			The UE is switched off or power is removed (see ICS).
36	~~->~~		Void~~DETACH REQUEST~~	~~Message not sent if power is removed.~~ ~~Detach type = 'power switched off, PS detach'~~
37	~~SS~~		Void	~~The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.~~
38	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 37.

Specific message contents

12.9.4.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "PS services not allowed" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step22, when the UE receives the SERVICE REJECT message with cause "PS services not allowed" UE shall:

- not attempt to access the network.

At step26, when the UE gets the USIM replaced, is powered up or switched on,UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step30, UE shall:

- initiate the service request procedure.

12.9.5 Service Request / rejected / MS identity cannot be derived by the network

12.9.5.1 Definition

12.9.5.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "MS identity cannot be derived by the network", the UE shall:

1) set the GPRS update states to GU2 NOT UPDATED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
3) initiate the PS attach procedure automatically.

Reference

TS 24.008 clauses 4.7.13.4

12.9.5.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "MS identity cannot be derived by the network".

12.9.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #9 (MS identity cannot be derived by the network).

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 23.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6	SS		~~Void~~	UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "MS identity cannot be derived by the network"
9a	SS			The SS releases the RRC connection
10	UE			The UE automatically initiates the PS attach procedure.
10a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts ciphering and integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature
13	->		ATTACH COMPLETE	
13a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
14	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
15	->		SERVICE REQUEST	Service type = "signalling"
16	<-		SERVICE REJECT	Reject cause = ìGPRS services not allowedî
17			VOID	
18	~~SS~~		VOID	.
19	SS			The SS releases RRC connection.
20	UE			The UE is switched off or power is removed (see ICS).

21	~~->~~	~~DETACH REQUEST~~Void	~~Message not sent if power is removed. Detach type = 'power switched off, PS detach'~~
22	~~SS~~	Void	~~The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.~~
23	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 22.

Specific message contents

None.

12.9.5.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "MS identity cannot be derived by the network" UE shall:

- initiate PS attach procedure automatically.

12.9.6 Service Request / rejected / PLMN not allowed

12.9.6.1 Definition

12.9.6.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PLMN not allowed", the UE shall:

1) delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
2) set the GPRS update status to GU3 ROAMING NOT ALLOWED.
3) store the PLMN identity in the appropriate forbidden list.

Reference

TS 24.008 clauses 4.7.13.4

12.9.6.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PLMN not allowed".

12.9.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN).
All two cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #11 (PLMN not allowed).

c) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.

d) The SS checks that the UE does not answer a Page from the SS until the power of the UE is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 24.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6	SS		~~Void~~	UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "PLMN not allowed"
9a	SS			The SS releases the RRC connection
10	UE			The UE stores the PLMN identity in the "forbidden PLMN list".
11	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
12	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30second)
13	<-		PAGING TYPE1	Paging order is for PS service
14	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages shall be sent and shall be received on cell B.
15	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
16	UE			Cell B is preferred by the UE.
16a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
17a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI

18a	<-	AUTHENTICATION CIPHERING REQUEST	AND	
18b	->	AUTHENTICATION CIPHERING RESPONSE	AND	
18c	SS			The SS starts ciphering and integrity protection.
19	<-	ATTACH ACCEPT		Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2 Attach result = 'PS only attached'
20	->	ATTACH COMPLETE		
21	UE			The UE is switched off or power is removed (see ICS).
22	->	DETACH REQUEST		Message not sent if power is removed. Detach type = 'power switched off, PS detach'
23	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
24	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 23.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.9.6.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE receives the SERVICE REJECT message with cause "PLMN not allowed", UE shall:

- not perform a PS attach procedure in the same PLMN.

At step13, when the UE receives the paging message for PS domain UE shall:

- not respond to the paging message for PS domain.

At step18, UE shall:

- perform PS attach procedure.

12.9.7a Service Request / rejected / No PDP context activated

12.9.7a.1 Definition

12.9.7a.2 Conformance requirement

If the network rejects a service request procedure with the cause "No PDP context activated", the UE shall:

- deactivate all active PDP contexts.

After the UE deactivates all active PDP contexts, UE shall:

- perform PDP context(s) activation.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No PDP context activated".

12.9.7a.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #40 (No PDP context activated).

c) After the UE receives the SERVICE REJECT message, the UE shall send the ACTIVATE PDP CONTEXT REQUEST message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1				The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 26.
2				The SS is set in network operation mode II and activates cell A.
3				The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	
6	->		ATTACH COMPLETE	
6a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		AUTHENTICATION AND CIPHERING REQUEST	
10	->		AUTHENTICATION AND CIPHERING RESPONSE	
11	SS			The SS initiates a security mode control procedure.
12	UE			After a PS call is established, the UE suspends transmission of the user data.
13	SS			The SS initiates a Radio Bearer release procedure.
14	UE			The UE resumes the transmission of the user data.
15	->		SERVICE REQUEST	Service type = "data"
16	<-		SERVICE REJECT	Reject cause = "No PDP context activated"
17	UE			The UE shall deactivate locally all active PDP contexts.
17a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
18	UE			The UE initiates a PS call, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		AUTHENTICATION AND CIPHERING REQUEST	
21	->		AUTHENTICATION AND CIPHERING RESPONSE	
21	SS			SS initiates a security procedure by sending SECURITY MODE COMMAND message.
22	UE			The UE is switched off or power is removed (see ICS).
23	UE			The UE initiates Detach request, by MMI or by AT command.
24	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
25	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
26	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25.

Specific message contents

None.

12.9.7a.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure.

When the UE receives a SERVICE REJECT message with the cause "No PDP context activated", UE shall:

- deactivate all active PDP context.

At step15, UE shall:

- initiates a Service request procedure by sending a SERVICE REJECT message with Service type = "data".

12.9.7b Service Request / rejected / No Suitable Cells In Location Area

12.9.7b.1 Definition

12.9.7b.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "No Suitable Cells In Location Area", the UE shall:

1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall change to state GMM-REGISTERED.LIMITED-SERVICE.

2) store the LAI in the list of 'forbidden location areas for roaming'.

If no RRC connection exists, the UE shall perform the following additional actions immediately. If the UE is operating in operation mode A and an RRC connection exists, the UE shall perform these actions when the RRC connection is subsequently released:

1) if the UE is IMSI attached, the UE shall set the update status to U3 ROAMING NOT ALLOWED and shall reset the location update attempt counter. The new MM state is MM IDLE.

2) search for a suitable cell in a different location area on the same PLMN.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No Suitable Cells In Location Area".

12.9.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform routing area updating procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 15.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
2a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
2b	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = "PS attach" Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	SS			The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = 'signalling'
9	<-		SERVICE REJECT	Reject cause = 'No Suitable Cells In Location Area'
9a	SS			The SS releases the RRC connection The following message are sent and shall be received on cell B.
9b	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
9c	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
10a	<-		AUTHENTICATION AND CIPHERING REQUEST	
10b	->		AUTHENTICATION AND CIPHERING RESPONSE	
10c	SS			The SS starts ciphering and integrity protection.
11	<-		ROUTING AREA UPDATE ACCEPT	Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-3 Update result = 'RA updated'
12	->		ROUTING AREA UPDATE COMPLETE	

13 13a	UE	IMSI DETACH INDICATION	The UE is switched off or power is removed (see ICS). Message not sent if power is removed This is applicable only for UE in UE operation mode A.
14	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
15	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 14.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.9.7b.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step10, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.9.7c Service Request / rejected / Roaming not allowed in this location area

12.9.7c.1 Definition

12.9.7c.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Roaming not allowed in this location area", the UE shall:

1) set the PS update status to GU3 ROAMING NOT ALLOWED
2) store the LAI in the list of "forbidden location areas for roaming".
3) perform a PLMN selection.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7c.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Roaming area not allowed in this location area".

12.9.7c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'Roaming not allowed in this location area'. The SS checks that the UE shall not perform PS attach procedure when the UE enters a different location area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 19.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4		->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts ciphering and integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = 'PS only attached' Routing area identity = RAI-1
6		SS		The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8		->	SERVICE REQUEST	Service type = "signalling"
9		<-	SERVICE REJECT	Reject cause = "roaming not allowed in this location area"
9a		SS		The SS releases the RRC connection.
10	UE			The UE performs PLMN selection.
11		SS		Set the cell type of cell A to the " Non-Suitable cell". Set the cell type of cell B to the " Serving cell". (see note)
12		SS		The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
13		SS		Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the " Serving cell". (see note) The following messages are sent and shall be received on cell C.
13a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
14		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
14a		<-	AUTHENTICATION AND CIPHERING REQUEST	
14b		->	AUTHENTICATION AND CIPHERING RESPONSE	
14c		SS		The SS starts integrity protection.

15	<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA update' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-2
16	->	ROUTING AREA UPDATE COMPLETE	
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
18a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 3 to step 18.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.9.7c.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step12, when the UE enters a same location area, UE shall:

- not initiate the combined PS attach procedure.

At step14, when the UE enters a different location area, UE shall:

- initiate the routing area updating procedure with information elements specified in the above Expected Sequence.

12.9.8 Service Request / Abnormal cases / Access barred due to access class control

12.9.8.1 Definition

12.9.8.2 Conformance requirement

If the UE access class X is barred, the UE shall:

1) not start Service Request procedure.
2) stay in the current serving cell.
3) applie normal cell reselection process.

If the UE access class X is granted or serving cell is changed, the UE shall:

1) start Service Request procedure.

Reference

TS 24.008 clauses 4.7.13.5.

12.9.8.3 Test purpose

To test the behavior of the UE in case of access class control (access is granted).

12.9.8.4 Method of test

Initial condition

A random access class X (0-15) is selected. The USIM is programmed with this access class X.

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS initiates access class X barred. A service request procedure is not performed.

The SS initiates that access class X is not barred. A service request procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 15.
1a	UE			The UE is powered up or switched on and attempt to initiate an ATTACH. (see ICS)
2			Void	
3			Void	
4	UE			The UE automatically initiates an attach.
4a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
5	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
5a	<-		AUTHENTICATION AND CIPHERING REQUEST	
5b	->		AUTHENTICATION AND CIPHERING RESPONSE	
5c	SS			The SS starts ciphering and integrity protection.

6	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
7	->	ATTACH COMPLETE	
7a	SS		UE is moved to PMM idle. (The SS releases the RRC connection)
7b~~a~~	SS		The access class x is barred in cell A
8	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8a	UE		No SERVICE REQUEST sent to SS, as access class x is barred. SS waits 30 seconds
8b	SS		The access class x is not barred any more
9	->	SERVICE REQUEST	Service Type = "signalling".
10	<-	SERVICE REJECT	
11		VOID	
11a	SS		The SS releases the RRC connection.
12	UE		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
15	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 1a to step 14.

Specific message contents

None.

12.9.8.5 Test requirements

At step 8a, when the UE access class x is barred, UE shall:

- not perform Service Request procedure.

At step9, UE shall:

- perform Service Request procedure.
- perform the service request procedure.

<End of modification>

<Start of modification>

12.9.10 Service Request / Abnormal cases / Power off

12.9.10.1 Definition

12.9.10.2 Conformance requirement

When the UE in GMM-SERVICE-REQUEST-INITIATED state is switched off, UE shall:

- perform PS detach procedure.

Reference

TS 24.008 clauses 4.7.13.5

12.9.10.3 Test purpose

To test the behavior of the UE in case of collision between Service request procedure and "powered off".

12.9.10.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

The UE is switched off after initiating a Service request procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 11.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
5a	SS			UE is moved to PMM idle. (The SS releases the RRC connection)
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling"
8	UE			The UE is powered off and initiates a PS detach (with power off) by MMI or by AT command.
9	->		DETACH REQUEST	Detach type = 'power switched off, PS detach'
10	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
11	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 10.

Specific message contents

None.

12.9.10.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, UE shall:

- perform the service request procedure

At step9, when the UE is switched off during the Service Request procedure, UE shall;

- abort the Service request procedure.

- perform the PS detach procedure.

12.9.11 Service Request / Abnormal cases / Service request procedure collision

12.9.11.1 Definition

12.9.11.2 Conformance requirement

Abnormal cases in the MS

The following abnormal cases can be identified:

- Procedure collision

  If the MS receives a DETACH REQUEST message from the network in state GMM-SERVICE-REQUEST-INITIATED, the GPRS detach procedure shall be progressed and the Service request procedure shall be aborted. If the cause IE, in the DETACH REQUEST message, indicated a "reattach request", the GPRS attach procedure shall be performed.

Reference

TS 24.008 clauses 4.7.13.5

12.9.11.3 Test purpose

To test the behaviour of the UE in case of collision between Service request procedure and PS detach procedure.

12.9.11.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) The SS does not respond to the SERVICE REQUEST for data. Instead it sends a DETACH REQUEST message to the UE, with the Detach type IE set to value "re-attach required".

c) After the UE receives the DETACH REQUEST message, the repeats the attach procedure.

d) The UE is switched off or power is removed. If the UE is switched off it sends a DETACH REQUEST.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 17.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'PS only attached'
6	SS		~~Void~~	UE is moved to PMM idle. (The SS releases the RRC connection)
7a	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7b	->		SERVICE REQUEST	Service type ="signalling"
7c	SS			The SS starts ciphering and integrity protection.
7d	SS			The SS initiates a Radio Bearer release procedure.
7e	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "data"
9	SS			The SS does not respond to SERVICE REQUEST message.
10	<-		DETACH REQUEST	Detach type = "re-attach required"
10a	->		DETACH ACCEPT	
11	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts ciphering and integrity protection.
12	<-		ATTACH ACCEPT	Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Attach result = 'PS only attached'
13	->		ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
16	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

17	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 16.

Specific message contents

None.

12.9.11.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives a DETACH REQUEST message from the network before the Service request procedure completes, UE shall;

- repeat the attach procedure.
- retry the Service request procedure

At step 19 if the UE is switched off, UE shall:

- perform the PS detach procedure.

<End of Modification>

3GPP TSG-T WG1 Meeting #25
Malta, Nov 1st-5th, 2004

Tdoc ⌘T1-041929

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1015** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5; Corrections to HSDPA RRC test cases (revision of T1-041755)
Source:	⌘	Ericsson, NTT DoCoMo
Work item code:	⌘	HSDPA
Date:	⌘	02/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘

At the RAN2#43 meeting, there was a discussion about DL TrCHs information for HSDPA. As a conclusion, RAN2 recommends to be tested using the following configurations (as mentioned in R2-041480);

- One DL DTCH configuration using the RB Multiplexing option set to ìHS-DSCHî and only HS-DSCH transport channel configured.
  (We mentioned this configuration as 2TrCHs.)
- One DL DTCH configuration using 2 RB Multiplexing options, one to ìDCH" and the other to "HS-DSCHî. Configuring either the corresponding DCH or MAC-d flow will result in the DTCH being mapped to the DPCH or HS-PDSCH.
  (We mentioned this configuration as 3TrCHs.)

All the test cases that are available in the current TS34.123-1 have only one option setting DL TrCH infromation to 3TrCHs. In this CR, we would like to propose another option setting it to 2TrCHs for some test cases and modify them based on RAN2 recommendation.

Minor errors and some non-typical settings exist in the RRC messages used in HSDPA RRC test cases.

At TSG-RAN #25, 25.331 CR 2393 ìCorrection to HS-DSCH reception conditionsî was approved. This CR clarifies when the UE starts and stops HS-DSCH reception.

Limited test coverage on establishment of the RAB for HS-DSCH via CELL_FACH.

Summary of change: ⌘

8.2.1.27:
Conformance requirements updated.
Corrections to the message contents.

8.2.1.28:
Conformance requirements updated.

8.2.1.29:
Conformance requirements updated.
The case of setting to 2TrCHs is applied.
Corrections to the message contents.

8.2.1.30:
Conformance requirements updated.

8.2.2.36:
Conformance requirements updated.
According to CR 2393 to TS 25.331, instead of using the IE ìDownlink HS-PDSCH informationî for stopping and starting HS-DSCH reception, the MAC-hs queue is deleted and re-added.

8.2.2.37:
Conformance requirements updated.
The case of setting to 2TrCHs is applied.
Correction to the initial condition and the message contents.
RAB setup is made via CELL_FACH to add test coverage.

8.2.2.38:
Conformance requirements updated.
According to CR 2393 to TS 25.331, the IE ìDownlink HS-PDSCH informationî is not necessary for maintaining HS-DSCH reception.

8.2.2.39:
Conformance requirements updated.
According to CR 2393 to TS 25.331, the IE ìDownlink HS-PDSCH informationî is not necessary for starting HS-DSCH reception.
The case of setting to 2TrCHs is applied.
Correction to the initial condition and the message contents.

8.2.2.40:
Conformance requirements updated.
The case of setting to 2TrCHs is applied.
Correction to the initial condition and the message contents.

8.2.3.30:
Conformance requirements updated.

8.2.6.39a:
Conformance requirements updated.
The case of setting to 2TrCHs is applied.
Correction to the initial condition and the message contents.

8.2.6.39b:
Conformance requirements updated.
Corrections to the message contents.

8.2.6.40:
Conformance requirements updated.
Corrections to the message contents.

		8.2.6.42: Conformance requirements updated. The case of setting to 2TrCHs is applied. Correction to the initial condition and the message contents. 8.2.6.47 The case of setting to 2TrCHs is applied. Correction to the initial condition and the message contents. 8.3.1.33 The case of setting to 2TrCHs is applied. Correction to the initial condition and the message contents.
Consequences if not approved:	⌘	Inconsistency with the core specification.

Clauses affected:	⌘	8.2.1.27, 8.2.1.28, 8.2.1.29, 8.2.1.30, 8.2.2.36, 8.2.2.37, 8.2.2.38, 8.2.2.39, 8.2.2.40, 8.2.3.30, 8.2.6.39a, 8.2.6.39b, 8.2.6.40, 8.2.6.42, 8.2.6.47, 8.3.1.33			
Other specs affected:	⌘	Y / N		⌘	
			X Other core specifications		
			X Test specifications		
			X O&M Specifications		
Other comments:	⌘	Affects Rel-5.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.1.27 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (two radio links, start of HS-DSCH reception)

8.2.1.27.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.1.27.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUPmessage, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

~~1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:~~

1~~2~~> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

Ö

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

Ö

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK-Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".~~

Ö

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

Ö

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.5.6, ~~8.6.6.32,~~ 8.6.6.33, 8.6.6.34

8.2.1.27.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message when having two radio links established.

8.2.1.27.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.1.27

Parameter	**Unit**	**Cell 1**		**Cell 2**	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec	dBm/3.84MHz	-60	-60	-70	-60

Table 8.2.1.27 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state. Only signalling radio bearers have been established in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.1.27. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer mapped to HS-DSCH. After the UE receives this message, it configures them and establishes a radio access bearer and cell 1 shall be assigned as the serving HS-DSCH cell. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0a				SS configures its downlink transmission power settings according to columns "T1" in table 8.2.1.27.
0b	→		MEASUREMENT REPORT	See specific message contents for this message
1	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set.
2	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
3	←		RADIO BEARER SETUP	
4	→		RADIO BEARER SETUP COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 0b)

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 1)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Radio link addition information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 2
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH may be used.
- DPCH frame offset	Calculated value from Cell synchronisation infomation
- Secondary CPICH info	Not present
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE
- Secondary scrambling code	Not present
- Spreading factor	Refer to the parameter set in TS 34.108
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.
- Scrambling code change	Not present
- TPC combination index	1
- SSDT cell identity	Not present
- Close loop timing adjustment mode	Not present
- TFCI combining indicator	TRUE
- SCCPCH information for FACH	Not present

RADIO BEARER SETUP (Step 3)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
Frequency info	Not present
Maximum allowed UL TX power	Not present
Downlink information for each radio link list	
- Downlink information for each radio link	(for cell 1)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	~~Not present~~
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	1
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	0
- Scrambling code change	No change
- TPC combination index	0
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not Present
- Downlink information for each radio link	(for cell 2)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	FALSE
- Downlink DPCH info for each RL	~~Not present~~
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	1
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	0
- Scrambling code change	No change
- TPC combination index	~~0~~1
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not Present

8.2.1.27.5 Test requirements

After step 3, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.28 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (RB mapping for both DL DCH and HS-DSCH in cell without HS-DSCH support)

8.2.1.28.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.1.28.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUPmessage, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

~~1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:~~

1~~2~~> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

Ö

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b of TS 25.331.

Ö

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33 of TS 25.331.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34 of TS 25.331.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 of TS 25.331 for the IE "Measurement Feedback Info".~~

~~Ö~~

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

Ö

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, ~~8,6,3,1~~8.6.3.1, 8.6.3.1b, 8.6.5.6, ~~8.6.6.32,~~ 8.6.6.33, 8.6.6.34

8.2.1.28.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to DCH and HS-DSCH according to the received RADIO BEARER SETUP message in a cell without HS-DSCH.

8.2.1.28.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio bearer with RB mapping to DCH and HS-DSCH. After the UE receives this message, it establishes a radio bearer and maps it to the DCH. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New H-RNTI	Not present
RAB information for setup	
- RAB info	(high-speed AM DTCH for PS domain)
- RAB identity	0000 0110B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	PS domain
- NAS Synchronization Indicator	Not Present
- Re-establishment timer	useT315
- RB information to setup	(high-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Same as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108
Added or Reconfigured DL TrCH information	Same as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108
Downlink HS-PDSCH Information	Not Present
Downlink information per radio link list	Same as specified for "Packet to CELL_DCH from CELL_DCH in PS" in TS 34.108

8.2.1.28.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.29 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Uplink TFCS restriction, start of HS-DSCH reception)

8.2.1.29.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.1.29.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUPmessage, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

~~1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:~~

1~~2~~> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

Ö

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

2> if the value of the IE "MAC-hs reset indicator" is TRUE:

3> reset the MAC-hs entity.

Ö

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".~~

~~Ö~~

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

Ö

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, ~~8,6,3,1~~8.6.3.1, 8.6.3.1b, 8.6.5.6, ~~8.6.6.32,~~ 8.6.6.33, 8.6.6.34

8.2.1.29.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH using uplink TFCS restriction according to the received RADIO BEARER SETUP message.

8.2.1.29.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio access bearer mapped to HS-DSCH using a 384 kbps uplink DCH restricted to 64 kbps. After the UE receives this message, it configures them and establishes a radio access bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" and the radio bearer configuration for ì Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
UL Transport channel information for all transport channels - UL DCH TFCS	 Set according to the radio bearer configuration for ìInteractive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108 clause 6.10 Parameter Set.
CHOICE channel requirement - Uplink DPCH power control info	Uplink DPCH info Same contents as a RADIO BEARER SETUP message used in initial procedure
- CHOICE mode - Scrambling code type - Scrambling code number - Number of DPDCH - Spreading factor	FDD Long 0 (0 to 16777215) Not Present Set according to the radio bearer configuration for ìInteractive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108 clause 6.10 Parameter Set.
- TFCI existence	Set according to the radio bearer configuration for ìInteractive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108 clause 6.10 Parameter Set.
- Number of FBI bit - Puncturing Limit	Not Present Set according to the radio bearer configuration for ìInteractive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108 clause 6.10 Parameter Set.
~~Downlink information per radio link list~~ Added or Reconfigured DL TrCH information	~~Not present~~ Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

8.2.1.29.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.30 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, start of HS-DSCH reception)

8.2.1.30.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.1.30.2 Conformance requirement

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

Ö

In case the procedure was triggered by reception of a RADIO BEARER SETUPmessage, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;

- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

~~1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:~~

1~~2~~> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

Ö

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

2> if the value of the IE "MAC-hs reset indicator" is TRUE:

3> reset the MAC-hs entity.

Ö

If the IE "HS-SCCH Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

Ö

If the IE "Measurement Feedback Info" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

1> store the received configuration.

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.5.25, ~~8,6,3,1~~8.6.3.1, 8.6.3.1b, 8.6.5.6, ~~8.6.6.32,~~ 8.6.6.33, 8.6.6.34

8.2.1.30.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH and starts HS-DSCH reception in conjunction with a interfrequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER SETUP message.

8.2.1.30.4 Method of test

Initial Condition

System Simulator: 2 cellsñCells 1 and 6 are active.

UE: PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state. Only signalling radio bearers have been established in cell 1.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio bearer with RB mapping to HS-DSCH as well as a timing re-initialised interfrequency hard handover to cell 6. After the UE receives this message, it establishes the radio bearer and the physical channels in cell 6. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC in cell 6. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for cell 6
- PDSCH with SHO DCH info	Not present
- PDSCH code mapping	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400
- Secondary CPICH info	Not present
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set
- Secondary scrambling code	Not present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1
- Scrambling code change	Not Present
- TPC combination index	0
- SSDT cell identity	Not present
- Closed loop timing adjustment mode	Not present

8.2.1.30~~28~~.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message using AM RLC in cell 6.

8.2.2.36 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Start and stop of HS-DSCH reception)

8.2.2.36.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.2.36.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK-Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".~~

~~If the IE "Downlink HS-PDSCH Information" is not included, the UE shall:~~

~~1> set the variable HS_DSCH_RECEPTION to FALSE;~~

~~1> stop HS-DSCH reception procedures according to the stored HS-PDSCH configuration.~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1~~, 8.6.6.32~~

8.2.2.36.3 Test purpose

To confirm that the UE starts and stops receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.36.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to stop the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to start the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception
2				At the activation time, SS stops HS-DSCH transmission to the UE.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception
5				At the activation time, SS resumes HS-DSCH transmission to the UE.
6	→		RADIO BEARER RECONFIGURATION COMPLETE	
	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	Not Present
- MAC-hs queue to delete list	
- MAC-hs queue Id	0
- DCH quality target	Not Present

RADIO BEARER RECONFIGURATION (step 4)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL Transport channel identity	Not Present
- CHOICE DL parameters	HS-DSCH
- HARQ Info	Not Present
- Added or reconfigured MAC-d flow	
- MAC-hs queue to add or reconfigure list	
- MAC-hs queue Id	0
- MAC-d Flow Identity	0
- T1	50
- MAC-hs window size	16
- MAC-d PDU size Info	
- MAC-d PDU size	336
- MAC-d PDU size index	0
- MAC-hs queue to delete list	Not Present
- DCH quality target	Not Present
~~Downlink HS-PDSCH Information~~	
~~- HS-SCCH Info~~	~~Not present~~
~~- Measurement Feedback Info~~	~~Not present~~
~~- CHOICE mode~~	~~FDD (no data)~~
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE

8.2.2.36.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 5, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.37 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and from CELL_FACH to CELL_DCH: Success (start and stop of HS-DSCH reception)

8.2.2.37.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.2.37.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

~~1> stop any HS-DSCH reception procedures;~~

1> clear any stored IE ì Downlink HS-PDSCH informationî ~~configuration~~;

~~1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;~~

~~1> release all HARQ resources;~~

~~1> remove any H-RNTI stored;~~

~~1> clear the variable H_RNTI;~~

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.~~set the variable HS_DSCH_RECEPTION to FALSE.~~

Ö

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".~~

~~If the IE "Downlink HS-PDSCH Information" is not included, the UE shall:~~

~~1> set the variable HS_DSCH_RECEPTION to FALSE;~~

~~1> stop HS-DSCH reception procedures according to the stored HS-PDSCH configuration.~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25~~8.6.6.32~~

8.2.2.37.3 Test purpose

To confirm that the UE transits to CELL_FACH state from CELL_DCH state and stops receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

To confirm that the UE transits to CELL_DCH state from CELL_FACH state and starts receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.37.4 Method of test

Initial Condition

System Simulator: 1 cell

SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).

UE: ~~PS_DCCH_DTCH_HS_DSCH (state 6-17)~~ PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

~~SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4.~~ The UE is in CELL_FACH state and SS establishes a radio bearer mapped on HS-DSCH by transmitting a RADIO BEARER SETUP message. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops HS-DSCH reception, moves to CELL_FACH state and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state, resumes HS-DSCH reception and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←		ACTIVATE PDP CONTEXT ACCEPT	
~~1~~4	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception and transit to CELL_FACH state,
~~2~~5	→		RADIO BEARER RECONFIGURATION COMPLETE	
~~3~~6	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception and transit to CELL_DCH state
~~4~~7	→		RADIO BEARER RECONFIGURATION COMPLETE	
~~5~~8	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

RADIO BEARER SETUP (Step 1)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS" in 34.108.

RADIO BEARER RECONFIGURATION (Step ~~1~~4)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present

- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	~~Not Present~~
- Information for each multiplexing option	1 RBMuxOption
- RLC logical channel mapping indicator	Not Present
- Number of uplink RLC logical channels	1
- Uplink transport channel type	RACH
- UL Transport channel identity	Not Present
- Logical channel identity	7
- CHOICE RLC size list	Explicit list
- RLC size index	Reference to TS34.108 clause 6 Parameter Set
- MAC logical channel priority	8
- Downlink RLC logical channel info	
- Number of downlink RLC logical channels	1

- Downlink transport channel type	FACH
- DL DCH Transport channel identity	Not Present
- DL DSCH Transport channel identity	Not Present
- Logical channel identity	7
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step ~~3~~6)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'1010 1010 1010 1010'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	~~Not Present~~ Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
- RB stop/continue	Not Present
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	1
- Measurement Feedback Info	
- CHOICE mode	FDD
- POhsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	-3 dB
- CHOICE mode	FDD (no data)
Downlink information for each radio link	
- Serving HS-DSCH radio link indicator	TRUE

8.2.2.37.5 Test requirements

After step ~~1~~4, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step ~~3~~6, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.38 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception)

8.2.2.38.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.2.38.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

~~Ö~~

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33 of TS 25.331.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34 of TS 25.331.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 of TS 25.331 for the IE "Measurement Feedback Info".~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.6.3.1, 8.2.2.3, 8.5.25

8.2.2.38.3 Test purpose

To confirm that the UE reconfigures the radio bearer while being mapped to HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.38.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it rconfigures the radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1		←	RADIO BEARER RECONFIGURATION	
2		→	RADIO BEARER RECONFIGURATION COMPLETE	
3		←→	CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
~~Downlink HS-PDSCH Information~~	
~~- HS-SCCH Info~~	~~Not present~~
~~- Measurement Feedback Info~~	~~Not present~~
~~- CHOICE mode~~	~~FDD (no data)~~

8.2.2.38.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.39 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, start and stop of HS-DSCH reception)

8.2.2.39.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.2.39.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

Ö

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";

- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;

- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

~~Ö~~

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".~~

~~If the IE "Downlink HS-PDSCH Information" is not included, the UE shall:~~

~~1> set the variable HS_DSCH_RECEPTION to FALSE;~~

~~1> stop HS-DSCH reception procedures according to the stored HS-PDSCH configuration.~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.5.25, 8.6.3.1~~, 8.6.6.32~~

8.2.2.39.3 Test purpose

To confirm that the UE starts and stops receiving the HS-DSCH in conjunction with a interfrequency hard handover without prior measurement on the target frequency according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.39.4 Method of test

Initial Condition

System Simulator: 2 cellsñCells 1 and 6 are active.

UE: PS_DCCH_DCH (state 6-7)~~PS_DCCH_DTCH_HS_DSCH (state 6-17)~~ as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1. The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform a timing re-initialised interfrequency hard handover to cell 6 and stop the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 6.

The SS transmits a RADIO BEARER RECONFIGURATION message instructing the UE to perform an interfrequency hard handover to cell 1 and start the reception of HS-DSCH. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC in cell 1.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1	←		RADIO BEARER RECONFIGURATION	Hard handover, stop of HS-DSCH reception
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		RADIO BEARER RECONFIGURATION	Hard handover, start of HS-DSCH reception
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

RADIO BEARER RECONFIGURATION (step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108, except for the following.

Information Element	Value/remark
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	200
- Timer_poll	200
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for cell 6
- Cell ID	Not present
- PDSCH with SHO DCH info	Not present
- PDSCH code mapping	Not present
- Serving HS-DSCH radio link indicator	FALSE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400
- Secondary CPICH info	Not present

- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set
- Secondary scrambling code	Not present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1
- Scrambling code change	Not Present
- TPC combination index	0
- SSDT cell identity	Not present
- Closed loop timing adjustment mode	Not present

RADIO BEARER RECONFIGURATION (step 3)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	DCH
- Transport channel identity	6
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
~~Downlink HS-PDSCH Information~~	
~~- HS-SCCH Info~~	~~Not present~~
~~- Measurement Feedback Info~~	~~Not present~~
~~- CHOICE mode~~	~~FDD (no data)~~
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 1
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 1
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for cell 1
- Cell ID	Not present
- PDSCH with SHO DCH info	Not present

- PDSCH code mapping	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400
- Secondary CPICH info	Not present
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set
- Secondary scrambling code	Not present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1
- Scrambling code change	Not Present
- TPC combination index	0
- SSDT cell identity	Not present
- Closed loop timing adjustment mode	Not present

8.2.2.39.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 6.

After step 3, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message in cell 1.

8.2.2.40 Radio Bearer Reconfiguration for transition from CELL_DCH to CELL_FACH and from CELL_FACH to CELL_DCH: Success (frequency band modification, start and stop of HS-DSCH reception)

8.2.2.40.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.2.40.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

Ö

In case the procedure was triggered by reception of a RADIO BEARER RECONFIGURATION message, the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

~~Ö~~

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34.~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".~~

~~If the IE "Downlink HS-PDSCH Information" is not included, the UE shall:~~

~~1> set the variable HS_DSCH_RECEPTION to FALSE;~~

~~1> stop HS-DSCH reception procedures according to the stored HS-PDSCH configuration.~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1~~, 8.6.6.32~~

8.2.2.40.3 Test purpose

To confirm that the UE transits to CELL_FACH state from CELL_DCH state in another cell and frequency and stops receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

To confirm that the UE transits to CELL_DCH state from CELL_FACH state in another cell and frequency and starts receiving the HS-DSCH according to the received RADIO BEARER RECONFIGURATION message.

8.2.2.40.4 Method of test

Initial Condition

System Simulator: 2 cellsñCells 1 and 6 are active.

UE: PS_DCCH_DCH (state 6-7)~~PS_DCCH_DTCH_HS_DSCH (state 6-17)~~ as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.2.40

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		f_1		f_2	
CPICH Ec	dBm/ 3.84 MHz	-60	-65	Off	-60

Table 8.2.2.40 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.2.40.

The SS then applies the power levels according to ìT1î in table 8.2.2.40 and transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it stops HS-DSCH reception, moves to CELL_FACH state in cell 6 and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC.

Then, SS transmits a RADIO BEARER RECONFIGURATION message to the UE. After the UE receives this message, it moves to CELL_DCH state in cell 1, resumes HS-DSCH reception and transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1	SS			The SS applies the power settings according to ìT1î in table 8.2.2.40.
2	←		RADIO BEARER RECONFIGURATION	Stop of HS-DSCH reception and transit to CELL_FACH state in cell 6,
3	→		RADIO BEARER RECONFIGURATION COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	Start of HS-DSCH reception and transit to CELL_DCH state in cell 1
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

RADIO BEARER RECONFIGURATION (Step 2)

Use the same message as specified for "Packet to CELL_FACH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present

- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(High-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Frequency info	Set to the frequency of cell 6
Maximum allowed UL TX power	Not Present
Downlink information per radio link list	
-Downlink information for each radio link	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 6

RADIO BEARER RECONFIGURATION (Step 4)

Use the same message as specified for "Packet to CELL_DCH from CELL_FACH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RB information to reconfigure list	
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present

- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	400
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	150
- Timer_poll	150
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(high-speed AM DTCH)
- RB identity	23
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- CHOICE SDU discard mode	No Discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	500
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	100
- Timer_poll	100
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Windows	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	768
- Downlink RLC status info	
- Timer_status_prohibit	100
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
UL Transport channel information for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Not Present
DL Transport channel information common for all transport channel	Not Present
Added or Reconfigured DL TrCH information	~~Not Present~~ Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Frequency info	Set to the frequency of cell 1

Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	1
- Measurement Feedback Info	
- CHOICE mode	FDD
- POhsdsch	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	-3 dB
- CHOICE mode	FDD (no data)
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
- Δ_{ACK}	3
- Δ_{NACK}	3
- Ack-Nack repetition factor	1
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indicator	Initialise
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- DPC mode	0 (single)
- CHOICE mode	FDD
- Power offset PPilot-DPDCH	0
- DL rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or Flexible Position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE mode	FDD
- DPCH compressed mode info	Not Present
- TX Diversity mode	None
- SSDT information	Not Present
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	TRUE
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	1
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	0
- Scrambling code change	No change
- TPC combination index	0

- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not Present

8.2.2.40.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC on the uplink DCCH in cell 6.

After step 4, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC on the uplink DCCH in cell 1.

8.2.3.30 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception)

8.2.3.30.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.3.30.2 Conformance requirement

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

~~If the IE "Downlink HS-PDSCH Information" is not included, the UE shall:~~

~~1> set the variable HS_DSCH_RECEPTION to FALSE;~~

~~1> stop HS-DSCH reception procedures according to the stored HS-PDSCH configuration.~~

Reference

3GPP TS 25.331 clause 8.5.25, 8.6.3.1~~, 8.6.6.32~~

8.2.3.30.3 Test purpose

To confirm that the UE releases a radio bearer mapped to HS-DSCH according to the received RADIO BEARER RELEASE message.

8.2.3.30.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state with a radio bearer mapped on HS-DSCH established. The SS transmits a RADIO BEARER RELEASE message to the UE . This message requests the release of the radio access bearer mapped to HS-DSCH. After the UE receives this message, it releases the radio access bearer. Finally the UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108.

8.2.3.30.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.6.39a Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change without MAC-hs reset)

8.2.6.39a.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.6.39a.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link;

~~Ö~~

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33.~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34.~~

~~1> if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info":~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".~~

Reference

3GPP TS 25.331 clause 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4~~, 8.6.6.32~~

8.2.6.39a.3 Test purpose

To confirm that the UE changes the serving HS-DSCH cell according to the received PHYSICAL CHANNEL RECONFIGURATION message in case of no MAC-hs reset.

8.2.6.39a.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH_DCH (state 6-7) ~~PS_DCCH_DTCH_HS_DSCH (state 6-17)~~ as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.39a

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.6.39a illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and cell 1 shall be kept as the serving HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS sends a MEASUREMENT CONTROL message to the UE configuring event 1D ì Change of best cellî ..

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.39a. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity" set to 1d.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE . At the activation time the UE changes the serving HS-DSCH radio link to cell 2. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set.
2	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
3	←		MEASUREMENT CONTROL	Configure event 1D ìChange of best cellî
4	SS			SS configures its downlink transmission power settings according to columns "T1" in table 8.2.4.35
5	→		MEASUREMENT REPORT	See specific message contents for this message
6	←		PHYSICAL CHANNEL RECONFIGURATION	
7	SS			At the activation time, the SS changes the serving HS-DSCH radio link to cell 2.
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE changes the serving HS-DSCH radio link to cell 2
9	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

ACTIVE SET UPDATE (Step 1)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Radio link addition information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 2
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH may be used.
- DPCH frame offset	Calculated value from Cell synchronisation infomation
- Secondary CPICH info	Not present
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE
- Secondary scrambling code	Not present
- Spreading factor	Refer to the parameter set in TS 34.108
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.
- Scrambling code change	Not present
- TPC combination index	0
- SSDT cell identity	Not present
- Close loop timing adjustment mode	Not present
- TFCI combining indicator	TRUE
- SCCPCH information for FACH	Not present

MEASUREMENT CONTROL (Step 3)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	~~1~~2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency measurement objects list	Not present
- Intra-frequency measurement quantity	~~Not present~~
- Filter coefficient	3
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	~~Not present~~
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	4
- Time to trigger	20 mSec
- Reporting cell status	~~Not present~~
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 5)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	~~1~~2
Measured results	~~Check to see if this IE is absent~~
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
Frequency info	Not present
Maximum allowed UL TX power	Not present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
- Δ_{ACK}	6
- Δ_{NACK}	6
- Ack-Nack repetition factor	2
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	2
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset~~POhsdsch~~	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- MAC-hs reset indicator	Not Present
Downlink information for each radio link list	
- Downlink information for each radio link	(for cell 1)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- Cell ID	Not Present
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	FALSE
- Downlink DPCH info for each RL	Not present
- SCCPCH information for FACH	Not present
- Downlink information for each radio link	(for cell 2)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not present
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	1
- Scrambling code change	No change
- TPC combination index	0
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not Present

8.2.6.39a.5 Test requirements

After step 4, the UE shall transmit a MEASUREMENT REPORT message.

After step 7, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.39b Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (serving HS-DSCH cell change with MAC-hs reset)

8.2.6.39b.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.6.39b.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "Downlink information for each radio link" is included in a received message, the UE shall:

2> if the IE "Serving HS-DSCH radio link indicator" is set to 'TRUE':

3> consider this radio link as the serving HS-DSCH radio link;

Ö

If the IE "Downlink information common for all radio links " is included the UE shall:

1> if the IE "MAC-hs reset indicator" is included:

2> reset the MAC-hs entity [TS 25.321].

~~Ö~~

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33 of TS 25.331~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34 of TS 25.331~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 of TS 25.331for the IE "Measurement Feedback Info".~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4, 8.6.6.27~~, 8.6.6.32~~

8.2.6.39b.3 Test purpose

To confirm that the UE changes the serving HS-DSCH cell according to the received PHYSICAL CHANNEL RECONFIGURATION message, in case of MAC-hs reset.

8.2.6.39b.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.39b

Parameter	Unit	Cell 1			Cell 2		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		Ch. 1			Ch. 1		
CPICH Ec	dBm/3.84MHz	-60	-60	-70	-70	-60	-60

Table 8.2.6.39b illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.39b. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11.The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and cell 1 shall be kept as the serving HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS configures reporting of event 1d ì change of best cellî by transmitting a MEASUREMENT CONTROL message to the UE. The SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.39b. The UE transmits a MEASUREMENT REPORT message to the SS.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. At the activation time the UE changes the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.39b.
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set.
4	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
5	←		MEASUREMENT CONTROL	Configure event 1D ìChange of best cellî
6	SS			SS configures its downlink transmission power settings according to columns "T2" in table 8.2.6.39b
7	→		MEASUREMENT REPORT	See specific message contents for this message
8	←		PHYSICAL CHANNEL RECONFIGURATION	
9	SS			At the activation time, the SS changes the serving HS-DSCH radio link to cell 2 and performs a MAC-hs reset.
10	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
11	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 2)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Radio link addition information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 2
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH may be used.
- DPCH frame offset	Calculated value from Cell synchronisation information
- Secondary CPICH info	Not present
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE
- Secondary scrambling code	Not present
- Spreading factor	Refer to the parameter set in TS 34.108
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.
- Scrambling code change	Not present
- TPC combination index	1
- SSDT cell identity	Not present
- Close loop timing adjustment mode	Not present
- TFCI combining indicator	TRUE
- SCCPCH information for FACH	Not present

MEASUREMENT CONTROL (Step 5)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	~~1~~2
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency measurement objects list	Not present
- Intra-frequency measurement quantity	~~Not present~~
- Filter coefficient	3
- CHOICE mode	FDD
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	~~Not present~~
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	FALSE
- CPICH Ec/N0 reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not Present
- Reporting cell status	Not present
- Measurement validity	Not present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1D
- Triggering condition 2	Active set cells
- Hysteresis	4
- Time to trigger	20 mSec
- Reporting cell status	~~Not present~~
- CHOICE reported cell	Report cells within active set
- Maximum number of reported cells	3
- Use CIO	FALSE
Measurement reporting mode	
- Measurement reporting transfer mode	Acknowledged mode RLC
- Periodic reporting / Event trigger reporting mode	Event trigger
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 7)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Measurement identity	~~1~~2
Measured results	~~Check to see if this IE is absent~~
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is present
- CPICH RSCP	Checked that this IE is present
- DeltaRSCP	Not checked
- Pathloss	Checked that this IE is absent
Measured results on RACH	Check to see if this IE is absent
Additional Measured results	Check to see if this IE is absent
Event results	Check to see if set to "Intra-frequency event results"
- Event ID	Check to see if set to "1D"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to "Primary scrambling code of Cell 2"

PHYSICAL CHANNEL RECONFIGURATION (Step 8)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
Frequency info	Not present
Maximum allowed UL TX power	Not present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
- Δ_{ACK}	6
- Δ_{NACK}	6
- Ack-Nack repetition factor	2
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	Not present
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	2
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset~~POhsdsch~~	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- MAC-hs reset indicator	TRUE
Downlink information for each radio link list	
- Downlink information for each radio link	(for cell 1)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- Cell ID	Not Present
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	FALSE
- Downlink DPCH info for each RL	Not present
- SCCPCH information for FACH	Not present
- Downlink information for each radio link	(for cell 2)
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- Cell ID	Not Present
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	Not present
~~- Primary CPICH usage for channel estimation~~	~~Primary CPICH may be used~~
~~- DPCH frame offset~~	~~Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400~~
~~- Secondary CPICH info~~	~~Not Present~~
~~- DL channelisation code~~	
~~- Secondary scrambling code~~	~~Not Present~~
~~- Spreading factor~~	~~Reference to TS34.108 clause 6.10 Parameter Set~~
~~- Code number~~	~~1~~
~~- Scrambling code change~~	~~No change~~
~~- TPC combination index~~	~~0~~
~~- SSDT Cell Identity~~	~~Not Present~~
~~- Closed loop timing adjustment mode~~	~~Not Present~~

- SCCPCH information for FACH	Not Present

8.2.6.39b.5 Test requirements

After step 1, the UE shall transmit a MEASUREMENT REPORT message.

After step 6, the UE shall transmit a MEASUREMENT REPORT message.

After step 9, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.40 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Two radio links, change of HS-PDSCH configuration)

8.2.6.40.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.6.40.2 Conformance requirement

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

~~Ö~~

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33 of TS 25.331~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34 of TS 25.331~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 of TS 25.331for the IE "Measurement Feedback Info".~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.5.25, 8.6.3.1, 8.6.6.4, 8.6.6.27~~, 8.6.6.32~~

8.2.6.40.3 Test purpose

To confirm that, when two radio links are used, the UE changes HS-DSCH specific uplink DPCH power control and measurement feedback configuration according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.40.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 are active

UE: PS_DCCH_DTCH_HS_DSCH (state 6-17) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.6.40

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec	dBm/3.84MHz	-60	-60	-70	-60

Table 8.2.6.40 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.40. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 2 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11.The SS transmits to the UE an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC to add cell 2 to the active set. When the UE receives this message, the UE shall configure layer 1 to begin reception without affecting the current uplink and downlink activities of existing radio links and cell 1 shall be kept as the serving HS-DSCH cell. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. At the activation time the UE changes the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.40.
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	The SS instructs the UE to add cell 2 in the active set.
4	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
5	←		PHYSICAL CHANNEL RECONFIGURATION	
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

MEASUREMENT REPORT (Step 2)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Message Type	
Integrity check info	
- Message authentication code	This IE is checked to see if it is present. The value is compared against the XMAC-I value computed by SS. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	This IE is checked to see if it is present. The value is used by SS to compute the XMAC-I value.
Measurement identity	1
Measured Results	
- Intra-frequency measured results	Check to see if measurement results for 2 cells are included (the order in which the different cells are reported is not important)
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is absent
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.1 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
- Cell measured results	
- Cell Identity	Checked that this IE is absent
- Cell synchronisation information	Checked that this IE is present and includes IE COUNT-C-SFN frame difference
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- CPICH Ec/N0	Checked that this IE is absent
- CPICH RSCP	Checked that this IE is present
- Pathloss	Checked that this IE is absent
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	
- Intra-frequency measurement event results	
- Intra-frequency event identity	1a
- Cell measurement event results	
- Primary CPICH info	
- Primary scrambling code	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

Use the same message as specified in 34.108 except for the following:

Information Element	Value/remark
Radio link addition information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 2
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH may be used.
- DPCH frame offset	Calculated value from Cell synchronisation information
- Secondary CPICH info	Not present
- DL channelisation code	This IE is repeated for all existing downlink DPCHs allocated to the UE
- Secondary scrambling code	Not present
- Spreading factor	Refer to the parameter set in TS 34.108
- Code number	For each DPCH, assign the same code number in the current code given in cell 1.
- Scrambling code change	Not present
- TPC combination index	1
- SSDT cell identity	Not present
- Close loop timing adjustment mode	Not present
- TFCI combining indicator	TRUE
- SCCPCH information for FACH	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 5)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-6dB
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
- Δ_{ACK}	6
- Δ_{NACK}	6
- Ack-Nack repetition factor	2
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink HS-PDSCH Information	
- HS-SCCH Info	Not present
~~- CHOICE mode~~	~~FDD~~
~~- DL Scrambling Code~~	
~~- HS-SCCH Channelisation Code Information~~	
~~- HS-SCCH Channelisation Code~~	~~1~~
- Measurement Feedback Info	
- CHOICE mode	FDD
- ~~PO~~hsdsch Measurement Power offset	6 dB
- CQI Feedback cycle, k	8 ms
- CQI repetition factor	2
- Δ_{CQI}	4~~5 (corresponds to 0dB in relative power offset)~~
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	Not present
Downlink information for each radio link list	Not present

8.2.6.40.5 Test requirements

After step 1, the UE shall transmit a MEASUREMENT REPORT message.

After step 5, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.42 Physical Channel Reconfiguration for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialized hard handover to another frequency, Serving HS-DSCH cell change)

8.2.6.42.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.6.42.2 Conformance requirement

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

Ö

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

1> the procedure ends.

Ö

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Whenever the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> perform HS_SCCH reception procedures according to the stored HS-SCCH configuration as stated in:

2> subclause 8.6.6.33 for the IE "HS-SCCH Info".

1> perform HS-DSCH reception procedures according to the stored HS-PDSCH configuration as stated in:

2> subclause 8.6.3.1b for the IE "H-RNTI";

2> subclause 8.6.5.6b for the IE "HARQ info";

2> subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Ö

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "New H-RNTI" is included and the UE will be in CELL_DCH state after completion of this procedure, the UE shall:

~~1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:~~

1~~2~~> store the value in the variable H_RNTI;

1> determine the value for the HS_DSCH_RECEPTION variable and take the corresponding actions as described in subclause 8.5.25.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

~~Ö~~

~~If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:~~

~~1> if the IE "New H-RNTI" is included:~~

~~2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.~~

~~1> if the IE "HS-SCCH Info" is included:~~

~~2> act as specified in subclause 8.6.6.33 of TS 25.331~~

~~1> if the IE "Measurement Feedback Info" is included:~~

~~2> act as specified in subclause 8.6.6.34 of TS 25.331~~

~~1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and~~

~~1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored $\Delta_{ACK,}$ Δ_{NACK} and Ack-NACK Repetition factor; and~~

~~1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;~~

~~2> set the variable HS_DSCH_RECEPTION to TRUE;~~

~~2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:~~

~~3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";~~

~~3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and~~

~~3> in subclause 8.6.6.34 of TS 25.331for the IE "Measurement Feedback Info".~~

Reference

3GPP TS 25.331 clauses 8.2.2, 8.3.5.1.2, 8.5.25, 8.6.3.1, 8.6.3.1b, 8.6.6.4, 8.6.6.27~~, 8.6.6.32~~

8.2.6.42.3 Test purpose

To confirm that the UE is able to perform a timing re-initialised hard handover to another frequency without prior measurement on the target frequency in conjunction with a serving HS-DSCH cell change according to the received PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.42.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 on frequency f_1, and cell2 on frequency f_2. Cells 1 and 2 have different primary scrambling codes.

UE: PS_DCCH_DCH (state 6-7) ~~PS_DCCH_DTCH_HS_DSCH (state 6-17)~~ as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established in cell 1.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE ordering the UE to change to Cell 2 on frequency f_2. At the activation time the UE changes to Cell 2 keeping the HS-PDSCH configuration. Finally the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0		←→	P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1	←		PHYSICAL CHANNEL RECONFIGURATION	The SS instructs the UE to change to Cell 2.
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH in PS" in 34.108 except for the following:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 2
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 2
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-80dB (i.e. ASN.1 IE value of ñ40)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
- Δ_{ACK}	6
- Δ_{NACK}	6
- Ack-Nack repetition factor	2
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	2
- Measurement Feedback Info	
- CHOICE mode	FDD
- ~~Pohsdsch~~Measurement Power Offset	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information per radio link list	1 radio link
Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	Set to the scrambling code for cell 2
- Cell ID	Not present
- PDSCH with SHO DCH info	Not present
- PDSCH code mapping	Not present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value of DPCH Frame Offset modulo 38400
- Secondary CPICH info	Not present
- DL channelisation code	Reference to TS34.108 clause 6.10 Parameter Set
- Secondary scrambling code	Not present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	Any value between 0 and Spreading factor-1

- Scrambling code change	Not Present
- TPC combination index	0
- SSDT cell identity	Not present
- Closed loop timing adjustment mode	Not present

8.2.6.42.5 Test requirements

After step 1, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message.

8.2.6.47 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (Compressed mode initiation, with active HS-DSCH reception): Success

Ö

8.2.6.47.3 Test purpose

1. To confirm that the UE configures compressed mode according to a PHYSICAL CHANNEL RECONFIGURATION message during active HS-DSCH reception.
2. To confirm that the UE activates compressed mode according to the previously stored configuration when receiving a MEASUREMENT CONTROL message during active HS-DSCH reception.

8.2.6.47.4 Method of test

Initial Condition

System Simulator: 2 cellsñCell 1 is active and cell 6 is inactive

UE: PS_DCCH_DCH (state 6-7) ~~PS_DCCH_DTCH_HS_DSCH (state 6-17)~~ as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- Compressed mode required yes/no

Test Procedure

Table 8.2.6.47

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec	dBm/3.84MHz	-60	-70	-70	-60

Table 8.2.6.47 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in CELL_DCH state in cell 1 with active HS-DSCH reception and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.47. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which includes the IE "DPCH compressed mode info" with the IE "TGPS Status Flag" set to "Deactivate". The UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

The SS switches its downlink transmission power setting according to columns "T1" in table 8.2.6.47, but the UE shall not transmit any MEASUREMENT REPORT messages.

The SS then sets up inter-frequency measurements (event 2b) and activates compressed mode, by sending a MEASUREMENT CONTROL message to the UE. The SS waits for 1s for the UE to activate compressed mode. The UE shall transmit MEASUREMENT REPORT message to report event 2b with the measured CPICH RSCP and Ec/No values for cell 6 to the SS.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1				The UE is in CELL_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.47.
2	←		PHYSICAL CHANNEL RECONFIGURATION	The SS downloads compressed mode parameters without activating compressed mode.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.47.
5	←		MEASUREMENT CONTROL	The SS configures inter-frequency measurements in the UE and activates compressed mode.
6	→		MEASUREMENT REPORT	The UE shall report event 2b with the measured CPICH RSCP and Ec/No values for cell 6.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

The contents of PHYSICAL CHANNEL RECONFIGURATION message in this test case is identical to the message sub-type titled "Packet to CELL_DCH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Downlink HS-PDSCH Information	
- HS-SCCH Info	Not present
- Measurement Feedback Info	Not present
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indication	Maintain
- CFN-target SFN frame offset	Not Present
- Downlink DPCH power control information	
- CHOICE Mode	FDD
-DPC Mode	0 (Single)
- CHOICE Mode	FDD
- Power offset Pilot-DPDCH	0
- DL rate matching restriction information	Not Present
- Spreading factor	Refer to the parameter set in TS 34.108
- Fixed or flexible position	Flexible
- TFCI existence	FALSE
- Number of bits for Pilot bits (SF=128, 256)	Not Present
- CHOICE mode	FDD
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	Deactivate
- TGCFN	(Current CFN+(256 ñ TTI/10msec)) mod256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	Infinity
- TGSN	4
- TGL1	7
- TGL2	Not Present
- TGD	Undefined
- TGPL1	3
- TGPL2	Not Present
- RPP	mode 0
- ITP	mode 0
- CHOICE UL/DL Mode	UL and DL, UL only, or DL only, depending on UE capability
- Downlink compressed mode method	HLS
- Uplink compressed mode method	HLS
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIRAfter2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity Mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Not Present
- MAC-hs reset indicator	Not Present

MEASUREMENT CONTROL (Step 5)

Use the same message sub-type found in [9] TS 34.108 clause 9, with the following exceptions in the IE(s) concerned:

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup

Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Inter-frequency measurement
- Inter-frequency measurement object list	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	Remove all inter-frequency cells
- New inter-frequency cells	
- Inter-frequency cell id	6
- Frequency info	Set to the frequency of cell 6
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	0 chips
- Read SFN Indicator	FALSE
- CHOICE Mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 6
- Primary CPICH TX power	Not Present
- Primary CPICH TX power	
- TX Diversity Indicator	Not Present
- Cell for measurement	Not Present
- Inter-frequency measurement quantity	
- CHOICE reporting criteria	Inter-frequency reporting criteria
- Filter Coefficient	0
- CHOICE Mode	FDD
- Measurement quantity for frequency quality estimate	CPICH RSCP
- Inter-frequency reporting quantity	
- UTRA Carrier RSSI	FALSE
- Frequency quality estimate	FALSE
- Non frequency related cell reporting quantities	
- Cell synchronisation information reporting indicator	FALSE
- Cell Identity reporting indicator	TRUE
- COICE Mode	FDD
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Measurement validity	
- UE state	CELL_DCH
- Inter-frequency set update	On with no reporting
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2b
- Threshold used frequency	-65 dBm
- W used frequency	Not present
- Hysteresis	1.0 dB
- Time to trigger	100 ms
- Reporting cell status	
- CHOICH reported cell	Report cells within monitored and/or virtual active set on non-used frequency
- Maximum number of reported cells per reported non-used frequency	2
- Parameters required for each non-used frequency	
- Threshold non used frequency	-68 dBm
- W non-used frequency	0
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN + (100 ñ TTI/10msec))mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate
- TGCFN	(Current CFN + (256 ñ TTI/10msec))mod 256

MEASUREMENT REPORT (Step 6)

The contents of MEASUREMENT REPORT message is the same as them found in [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Measurement Identity	Check to see if set to 15
Measured Results	
- CHOICE Measurement	
- Inter frequency measured results list	Check to see if set to "Inter-frequency measured results list"
- Inter frequency measurement results	
- Frequency info	Set to the frequency of cell 6
- UTRA carrier RSSI	Not checked
- Inter frequency cell measurement results	
- Cell measured results	
- Cell Identity	Not checked
- Cell synchronisation information	Not checked
- CHOICE Mode	FDD
- Primary CPICH Info	Not checked
- CPICH Ec/No	Check to see if it is present
- CPICH RSCP	Check to see if it is present
- Pathloss	Not checked
Measured Results on RACH	Not checked
Additional Measured results	Not checked
- Measured Result	
Event results	
- Inter-frequency measurement event results	
- Inter-frequency event identity	2b
- Inter-frequency cells	
- Frequency info	Check that the value of this IE is set to the frequency of cell 6
- Non freq related measurement event results	
- Primary CPICH info	
- Primary scrambling code	Check that the value of this IE is set to Scrambling code of cell 6

8.2.6.47.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5 the UE shall transmit a MEASUREMENT REPORT message containing the IE "measured results" reporting cell 6's CPICH RSCP and Ec/No values, also report the triggering of event '2c' included in IE "Event results".

<<End of Modification>>

<<Start of Modification>>

8.3.1.33 Cell Update: Transition from CELL_PCH to CELL_DCH, start of HS-DSCH reception, frequency band modification

Ö

8.3.1.33.3 Test purpose

To confirm that the UE enters the CELL_DCH state after it receives a CELL UPDATE CONFIRM message with a physical channel configuration causing it to start HS-DSCH reception on a different cell and frequency. To confirm that the UE enters CELL_PCH state on another frequency and stops HS-DSCH reception when it receives a PHYSICAL CHANNEL RECONFIGURATION message.

8.3.1.33.4 Method of test

Initial Condition

System Simulator: 2 cells - cell 1 is active and cell 6 is inactive.

UE: PS_DCCH_DCH (state 6-7) ~~PS_DCCH_DTCH_HS_DSCH (state 6-17)~~ as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.3.1.33

Parameter	Unit	Cell 1			Cell 6		
		T0	T1	T2	T0	T1	T2
UTRA RF Channel Number		f_1			f_2		
CPICH Ec	dBm/ 3.84 MHz	-60	-72	-60	Off	-55	-72

Table 8.3.1.33 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

SS initiates P25 to make the UE move to state 6-17 as specified in TS34.108 clause7.4. The UE is in the CELL_DCH state in cell 1 and has a radio bearer established that is mapped to HS-DSCH. The SS has configured its downlink transmission power setting according to columns "T0" in table 8.3.1.33.

The SS switches its downlink transmission power settings to columns "T1". The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH in cell 6. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC, selects cell 6 and enters CELL_PCH state.

The SS transmits a PAGING TYPE 1 message. The UE enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in cell 6 in response to the paging.

The SS switches its downlink transmission power settings to columns "T2". The SS transmits CELL UPDATE CONFIRM message, which includes DPCH and HS-PDSCH physical channel parameters for cell 1 on the downlink DCCH. Then the UE establishes the DPCH and HS-PDSCH in cell 1 and resumes HS-DSCH reception and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH in cell 1.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step 0)
1				The UE is in CELL_DCH state in cell 1 and the SS configures its downlink transmission power setting according to columns "T1" in table 8.3.1.33.
2			PHYSICAL CHANNEL RECONFIGURATION	
3			PHYSICAL CHANNEL RECONFIGURATION COMPLETE	After transmitting this message, the UE enters the CELL_PCH state in cell 6
4	SS			SS sends the L2 ack on the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and then waits 5 seconds to allow the UE to read system information before the next step. Note: The SS should continue to keep the dedicated channel configuration during the time when the L2 ack is sent to the UE.
5	←		PAGING TYPE 1	
6	→		CELL UPDATE	The UE enters the CELL_FACH state.
7	SS			The SS switches its downlink transmission power settings to columns "T2" in table 8.3.1.33.
8	←		CELL UPDATE CONFIRM	
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE changes to cell 1, enters the CELL_DCH state and starts HS-DSCH reception.
10	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.

PHYSICAL CHANNEL RECONFIGURATION (Step 2)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	Not present
Downlink information for each radio link list	Not present

CELL UPDATE (Step 6)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to ìPaging responseî

CELL UPDATE CONFIRM (Step 8)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
RRC State indicator	CELL_DCH
Frequency info	Set to the frequency of cell 1
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Downlink HS-PDSCH Information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the primary scrambling code of cell 1
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	1
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	1
- Scrambling code change	No change
- TPC combination index	0
- Power offset $P_{TPC-DPDCH}$	Not Present
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	

8.3.1.33.5 Test requirement

After step 2, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 5, the UE shall transmit a CELL UPDATE message.

After step 8, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC in cell 1.

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041930

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1016** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to TC 12.9.8 (P4)
Source:	⌘	Nokia, Anritsu, Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	02/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘ User initiation for the service request procedure is needed when access barred is removed from a cell.

Summary of change: ⌘

1. Conformance requirement updated.
2. Step 4 marked as Void as the UE performs attach already in step 1a.
3. At step 6, the P-TMSI & P-TMSI signature values were changed to be consistent with the TTCN implementation. Also the IE name ìMobile Identityî has been corrected to be ìAllocated P-TMSIî to be consistent with 24.008.
4. Detach handling for manual attach UEs added in step 8c. If the UE sends a detach, test purpose is then verified successfully as the signalling continues after access is granted.
5. TS 24.008 specifies the Service Request procedure. Clause 4.7.13.5 ìAbnormal cases in the MSî specifies:
   a) Access barred because of access class control

   The Service request procedure shall not be started. The MS stays in the current serving cell and applies normal cell reselection process. **The Service request procedure may be started by CM layer if it is still necessary**, i.e. when access is granted or because of a cell change.

   In TC 12.9.8, when access is granted in step 8b, UE will not start service request procedure unless it is initiated by upper layer signalling. This is added in step 8d.
6. GMM cause added in step 10.

Consequences if not approved: ⌘ Test case is not specified correctly.

Clauses affected:	⌘	12.9.8			
Other specs affected:	⌘	Y	N	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects R99, Rel-4 and Rel-5. This aligns prose test case to the TTCN.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

12.9.8 Service Request / Abnormal cases / Access barred due to access class control

12.9.8.1 Definition

12.9.8.2 Conformance requirement

If the UE access class X is barred, the UE shall:

1) not start Service Request procedure.
2) stay in the current serving cell.
3) applie normal cell reselection process.

If the UE access class X is granted or serving cell is changed, the UE ~~shall~~may:

1) start Service Request procedure.

Reference

TS 24.008 clauses 4.7.13.5.

12.9.8.3 Test purpose

To test the behavior of the UE in case of access class control (access is granted).

12.9.8.4 Method of test

Initial condition

A random access class X (0-15) is selected. The USIM is programmed with this access class X.

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS initiates access class X barred. A service request procedure is not performed.

The SS initiates that access class X is not barred. A service request procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 15.
1a	UE			The UE is powered up or switched on and attempt to initiate an ATTACH. (see ICS)
2			Void	
3			Void	
4	~~UE~~		Void	~~The UE automatically initiates an attach.~~
4a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
5	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
5a	<-		AUTHENTICATION AND CIPHERING REQUEST	
5b	->		AUTHENTICATION AND CIPHERING RESPONSE	
5c	SS			The SS starts ciphering and integrity protection.
6	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Allocated P-TMSI~~Mobile identity~~ = P-TMSI-~~1~~2 P-TMSI-~~1~~ 2 signature Routing area identity = RAI-1
7	->		ATTACH COMPLETE	
7a	SS			The access class x is barred in cell A
8	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8a	UE			No SERVICE REQUEST sent to SS, as access class x is barred. SS waits 30 seconds
8b	SS			The access class x is not barred any more
8c	UE			In manual attach mode UE may send a Detach Request (Note 1). If the SS receives a Detach Request the test execution continues from step 14.
8d	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
9	->		SERVICE REQUEST	Service Type = "signalling".
10	<-		SERVICE REJECT	GMM cause = 'GPRS services not allowed'
11			VOID	
11a	SS			The SS releases the RRC connection.
12	UE			The UE is switched off or power is removed (see ICS).
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
14	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
15	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 1a to step 14.
Note 1: Support of automatic PS attach procedure at switch on - no				

Specific message contents

None.

12.9.8.5 Test requirements

At step 8a, when the UE access class x is barred, UE shall:

- not perform Service Request procedure.

At step9, UE shall:

- perform Service Request procedure.

<END OF MODIFIED SECTION>

3GPP TSG T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc⌘T1-041934

CR-Form-v7

CHANGE REQUEST

⌘ ~~TS~~ **34.123-1** **CR** 1017 ⌘ **rev** - ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	New HSDPA RRC test cases (intra-frequency) (revision of T1-041799)
Source:	⌘	Panasonic, NTT DoCoMo
Work item code:	⌘	TEI
Date:	⌘	01/11/04
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘ Addition of RRC test cases for HSDPA according to T1-041229.

Summary of change: ⌘ The following new test cases have been added:

- 8.2.1.X Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (start of HS-DSCH reception)
- 8.2.4.X Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception)
- 8.3.1.X Cell Update: Transition from CELL_DCH to CELL_FACH, stop of HS-DSCH reception
- 8.3.1.Y Cell Update: Transition from CELL_DCH to CELL_DCH, with active HS-DSCH reception

Revision 1(From T1-041729)
Revision 2(From T1-041799)

TC 8.2.1.X

Message content of RADIO BEARER SETUP message in step 1 has been updated.

Corrections to the message contents.

TC 8.2.4.x

The title has been revised.
Test purpose has been added
The initial condition has been revised to match the test sequence.
Message content of RADIO BEARER SETUP message in step 0 and

	TRANSPORT CHANNEL RECONFIGURATION message in step 1 and 3 have been updated. Test requirement has been added. Corrections to the message contents. TC 8.3.1.X The initial condition has been revised to match the test sequence. Message content of CELL UPDATE CONFIRM message in step 4 has been updated. Corrections to the message contents. TC 8.3.1.Y The initial condition has been revised to match the test sequence. Message content of RADIO BEARER SETUP message in step 0 and CELL UPDATE CONFIRM message in step 4 have been updated. Corrections to the message contents.
Consequences if not approved:	⌘ Lack of test coverage for HSDPA

Clauses affected:	⌘	8.2.1.X (new) , 8.2.4.X (new), 8.3.1.X (new), 8.3.1.Y (new)			
Other specs affected:	⌘	**Y** / **N** / **X** **X** / / **X**	Other core specifications Test specifications O&M Specifications	⌘	TS 34.123-2
Other comments:	⌘	Affects Rel-5 UEs.			

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.1.X Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (start of HS-DSCH reception)

8.2.1.X.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.1.X.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

Ö

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b of TS 25.331.

2> if the IE ì Added or reconfigured MAC-d flowî is included:

3> perform the actions specified in subclause 8.6.5.5a of TS 25.331.

Ö

If the IE ì Downlink information common for all radio linksî is included, the UE shall:

1> if the value of the IE ì MAC-hs reset indicatorî is TRUE:

2> reset the MAC-hs entity.

Ö

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and

1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor; and

1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";

3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 of TS 25.331 for the IE "Measurement Feedback Info".

Ö

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

Ö

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8,6,3,1, 8.6.3.1b, 8.6.5.6, 8.6.6.32, 8.6.6.33, 8.6.6.34

8.2.1.X.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message.

8.2.1.X.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_FACH state. Only signalling radio bearers have been established.

The test operator is prompted to make an out-going call. The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio access bearer mapped to HS-DSCH using a 384 kbps uplink DCH restricted to 64 kbps. After the UE receives this message, it configures them and establishes a radio access bearer. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the same message as specified for ì Packet to CELL_DCH / HS-DSCH from CELL_FACH in PSî , with the following exception:

Information Element	Value/remark
RAB information for setup - PDCP info - Transmission RLC discard - MAX_DAT - Transmission window size - Timer_RST - Max_RST - Timer_poll_prohibit - Timer_poll - Poll_Windows - Receiving window size - Downlink RLC status info - Timer_status_prohibit	 Not present 10 256 1000 12 50 400 80 2047 50
~~Added or Reconfigured DL TrCH information~~	~~Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.~~
UL Transport channel Information for all transport channels - CHOICE Gain Factors - Gain factor~~facrot~~ β c - Gain factor β d	 Computed Gain Factors (The last TFC is set to Signalled Gain Factors) 10 (below 64 kbps) 8 (higher than 64 kbps) ~~(Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)~~ 15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
Maximum allowed UL TX power	24dBm
CHOICE channel requirement - Δ_{ACK} - Δ_{NACK}	 6 6
Downlink HS-PDSCH Information - Measurement Feedback Info - POhsdsch - CQI Feedback cycle, k - Δ_{CQI}	 9dB 10ms 3

8.2.1.X.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.4.X Transport Channel Reconfiguration from CELL_DCH to CELL_DCH: Success (with active HS-DSCH reception, not changing the value of TTI during UL rate modification)

8.2.4.X.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.4.X.2 Conformance requirement

In case the procedure was triggered by reception of a TRANSPORT CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 of TS 25.331 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b of TS 25.331.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33 of TS 25.331.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34 of TS 25.331.

1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and

1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor; and

1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b of TS 25.331 for the IE "H-RNTI";

3> in subclause 8.6.6.33 of TS 25.331 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 of TS 25.331 for the IE "Measurement Feedback Info".

Reference

3GPP TS 25.331 clauses 8.2.2, 8.6.3.1, 8.2.2.3

8.2.4.X.3 Test purpose

To confirm that the UE reconfigures the transport and physical channel while being mapped to HS-DSCH according to the received TRANSPORT CHANNEL RECONFIGURATION message.

To confirm that the UE keeps the same value of TTI (transmission time interval) during the procedure.

8.2.4.X.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS+-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established using a 384 kbps uplink DCH. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE to modify the uplink transmission rate. This message includes a new UL DCH TFCS, but the TTI remains unchanged. After the UE receives this message, it reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC.

Next the SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE which includes an old UL DCH TFCS used in the initial procedure in order to remove the previous limitaition on uplink rate and keeps the transmission time interval. The UE reconfigures the transport and physical channel and transmits a TRANSPORT CHANNEL RECONFIGURAITON COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←		TRANSPORT CHANNEL RECONFIGURATION	Limit the uplink transmission rate to 64 kbps
2	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
3	←		TRANSPORT CHANNEL RECONFIGURATION	Remove the limitation on the uplink rate and move to 384kbps
4	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for ìPacket to CELL_DCH / HS-DSCH from CELL_DCH in PSî in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, with the following exceptions:
- PDCP info	Not present
- Transmission RLC discard	
- MAX_DAT	10
- Transmission window size	256
- Timer_RST	1000
- Max_RST	12
- Timer_poll_prohibit	50
- Timer_poll	400
- Poll_Windows	80
- Receiving window size	2047
- Downlink RLC status info	
- Timer_status_prohibit	50
UL Transport channel Information for all transport channels	
- CHOICE Gain Factors	Computed Gain Factors (The last TFC is set to Signalled Gain Factors)
- Gain factor β c	10 (below 64 kbps) 8 (higher than 64 kbps)
- Gain factor β d	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
Added or Reconfigured UL TrCH information - Transmission Time Interval	10ms
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.
Maximum allowed UL TX power	24dBm
CHOICE channel requirement - Δ_{ACK} - Δ_{NACK}	 6 6
Downlink HS-PDSCH Information - Measurement Feedback Info - POhsdsch - CQI Feedback cycle, k - Δ_{CQI}	 9dB 10ms 3
Downlink information for each radio link list	Not present

TRANSPORT CHANNEL RECONFIGURATION (Step 1)

Use the same message as specified for ì Packet to CELL_DCH from CELL_DCH in PSî in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	Set according to the radio bearer configuration for ìInteractive or background / UL:64 DL: [max bit rate depending on UE categoryì / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108 clause 6.10 Parameter Set.
~~Added or Reconfigured UL TrCH information - Transmission Time Interval~~	~~10ms~~
CHOICE channel requirement - Uplink DPCH power control info - CHOICE mode - Scrambling code type - Scrambling code number - Number of DPDCH - Spreading factor - TFCI existence - Number of FBI bit - Puncturing Limit	Uplink DPCH info Same contents as a RADIO BEARER SETUP message used in the initial procedure FDD Long 1 Not Present Set according to the radio bearer configuration for ìInteractive or background / UL:64 DL: [max bit rate depending on UE categoryì / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108 clause 6.10 Parameter Set. Set according to the radio bearer configuration for ìInteractive or background / UL:64 DL: [max bit rate depending on UE categoryì / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108 clause 6.10 Parameter Set. Not Present Set according to the radio bearer configuration for ìInteractive or background / UL:64 DL: [max bit rate depending on UE categoryì / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî in 34.108 clause 6.10 Parameter Set.
Downlink information for each radio link list	Not present

TRANSPORT CHANNEL RECONFIGURATION (Step 3)

Use the same message as specified for ì Packet to CELL_DCH from CELL_DCH in PSî in 34.108, except for the following:

Information Element	Value/remark
UL Transport channel information for all transport channels - UL DCH TFCS	Same contents as the RADIO BEARER SETUP message used in the initial procedure.
~~Added or Reconfigured UL TrCH information~~ ~~- Transmission Time Interval~~	~~10ms~~
CHOICE channel requirement - Uplink DPCH power control info - CHOICE mode - Scrambling code type - Scrambling code number - Number of DPDCH - Spreading factor - TFCI existence - Number of FBI bit - Puncturing Limit	Uplink DPCH info Same contents as a RADIO BEARER SETUP message used in initial procedure FDD Long 1 Not Present Same contents as the RADIO BEARER SETUP message used in the initial procedure. Same contents as the RADIO BEARER SETUP message used in the initial procedure. Not Present Same contents as the RADIO BEARER SETUP message used in the initial procedure.
Downlink information for each radio link list	Not present

8.2.4.X.5 Test requirements

After step 1, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

After step 3, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.3.1.X Cell Update: Transition from CELL_DCH to CELL_FACH, stop of HS-DSCH reception

8.3.1.X .1 Definition

8.3.1.X .2 Conformance requirement

1> Radio link failure:

Ö

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6 of TS 25.331; or

Ö

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

Ö

1> if HS-DSCH is configured:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to subclause 8.5.17 of TS 25.331;

2> select Secondary CCPCH according to subclause 8.5.19 of TS 25.331;

2> use the transport format set given in system information as specified in subclause 8.6.5.1 of TS 25.331.

Reference

3GPP TS 25.331 clauses 8.3.1.2

8.3.1.X .3 Test purpose

To confirm that the UE stops HS-DSCH reception after a radio link failure in CELL_DCH during HS-DSCH reception.

8.3.1.X .4 Method of test

Initial Condition

System Simulator: 2 cells ñ Cell 1 is active and cell 2 is inactive.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.X

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.X illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.X. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 2. After that, it shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH to SS.

The SS transmits a CELL UPDATE CONFIRM message which request the UE to transit to CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1				SS configures cell 1 and 2 according to column "T1" in table 8.3.1.26. SS starts to listen to the uplink CCCH of cell 2.
2				The UE detects the radio link failure and stops reception of HS-DSCH.
3	→		CELL UPDATE	The UE shall find a new cell 2 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
Added or Reconfigured DL TrCH information - MAC-d PDU size	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A~~10~~9, with the following exception:~~:~~ 656

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI - S-RNTI - SRNC Identity Cell Update Cause	 Check to see if set to value assigned in cell 1. Check to see if set to value assigned in cell 1. Check to see if set to ìRadio link failureî

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9 with the exception of the following IEs:

Information Element	Value/remark
New C-RNTI	'0101 0101 0101 0101 0101'
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE
RB information to reconfigure list	~~Same as the set defined in RADIO BRAERER RECONFIGURATION message found in TS34.108 clause 9 under condition A5.~~
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present

- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH Information	
- Downlink transport channel type	HS-DSCH
- DL HS-DSCH MAC-d flow identity	0
Added or Reconfigured DL TrCH information	
- MAC-d PDU size	336

8.3.1.X .5 Test requirement

After step 2, the UE shall transmit a CELL UPDATE message and stop HS-DSCH reception.

8.3.1.Y Cell Update: Transition from CELL_DCH to CELL_DCH, with active HS-DSCH reception

8.3.1.Y .1 Definition

8.3.1.Y .2 Conformance requirement

1> Radio link failure:

Ö

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6 of TS 25.331; or

Ö

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

Ö

1> if HS-DSCH is configured:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

Reference

3GPP TS 25.331 clauses 8.3.1.2

8.3.1.Y .3 Test purpose

To confirm that the UE keeps the RB mapping option for HS-DSCH reception after a radio link failure in CELL_DCH during HS-DSCH reception.

8.3.1.Y .4 Method of test

Initial Condition

System Simulator: 2 cells ñ Cell 1 is active and cell 2 is inactive.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.Y

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.Y illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.Y. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 2. After that, it shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH to SS.

The SS transmits a CELL UPDATE CONFIRM message which request the UE to transit to CELL_DCH state and start reception of HS-DSCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1				SS configures cell 1 and 2 according to column "T1" in table 8.3.1.Y. SS starts to listen to the uplink CCCH of cell 2.
2				The UE detects the radio link failure and stops reception of HS-DSCH.
3	→		CELL UPDATE	The UE shall find a new cell 2 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for ì Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI - S-RNTI - SRNC Identity Cell Update Cause	 Check to see if set to value assigned in cell 1. Check to see if set to value assigned in cell 1. Check to see if set to ìRadio link failureî

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101 0101'
RRC State indicator	CELL_DCH
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE
UL Transport channel information common for all transport channels - CHOICE Gain Factors - Gain facrot ß c	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9 with the following exceptions; Computed Gain Factors (The last TFC is set to Signalled Gain Factors) 10 (below 64 kbps) 8 (higher than 64 kbps) (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
DL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Added or Reconfigured DL TrCH information list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
CHOICE channel requirement - ACK - ANACK	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions; 6 6
Downlink HS-PDSCH Information - Measurement Feedback Info - POhsdsch - CQI Feedback cycle, k - Acqi	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions; 9dB 10ms 3
Downlink information common for all radio links - Timing indicator	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9 with the following exception; Initialise
Downlink information per radio link list - Primary CPICH info - Primary scrambling code	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exception; 150

8.3.1.Y .5 Test requirement

After step 2, the UE shall transmit a CELL UPDATE message.

After step 4, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message and start reception of HS-DSCH.

3GPP TSG T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc⌘T1-041935

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 1018 ⌘ **rev** - ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	New HSDPA RRC test cases (inter-frequency) (revision of T1-041800)
Source:	⌘	Panasonic, NTT DoCoMo
Work item code:	⌘	TEI
Date:	⌘	01/11/04
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change: ⌘ Addition of RRC test cases for HSDPA according to T1-041229.

Summary of change: ⌘ The following new test cases have been added:

- 8.2.1.X Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (start of HS-DSCH reception with frequency modification)
- 8.2.3.X Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception with frequency modification)
- 8.2.3.Y Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success (stop of HS-DSCH reception with frequency modification)
- 8.3.1.X Cell Update: Transition from CELL_DCH to CELL_FACH (stop of HS-DSCH reception with frequency modification)
- 8.3.1.Y Cell Update: Transition from CELL_DCH to CELL_DCH (with active HS-DSCH reception and frequency modification)

Revision 1 (From T1-041799)
Revision 2 (From T1-041800)

TC 8.2.1.X

Message content of RADIO BEARER SETUP message in step 1 has been updated.

Corrections to the message contents.

TC 8.2.3.X

Conformance requirement has been revised and the reference clause has been revised too.
The initial condition has been revised to match the test sequence.
Message content of RADIO BEARER SETUP message in step 0 and 2 have been updated.

TC 8.2.3.Y

The initial condition has been revised to match the test sequence.
Message content of RADIO BEARER SETUP message in step 2 has been updated.
Corrections to the message contents.

TC 8.3.1.X

The initial condition has been revised to match the test sequence.
Message content of RADIO BEARER SETUP message in step 0 and CELL UPDATE CONFIRM message in step 4 have been updated.
Corrections to the message contents.

TC 8.3.1.Y

The initial condition has been revised to match the test sequence.
Message content of CELL UPDATE CONFIRM message in step 4 has been updated.
Corrections to the message contents.

Consequences if not approved:	⌘	Lack of test coverage for HSDPA

Clauses affected:	⌘	8.2.1.X (new) , 8.2.3.X (new), 8.2.4.X (new), 8.3.1.X (new), 8.3.1.Y (new)				
		Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘	
		X		Test specifications		TS 34.123-2
			X	O&M Specifications		
Other comments:	⌘	Affects Rel-5 UEs.				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.1.X Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success (start of HS-DSCH reception with frequency modification)

8.2.1.X.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.1.X.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER SETUPmessage, the UE shall:

1> transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Ö

If the IE "New H-RNTI" is included, the UE shall:

1> if the IE "Downlink HS-PDSCH Information" is also included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message:

2> store the value in the variable H_RNTI.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the value of the variable H_RNTI as UE identity in the HS-SCCH reception procedure in the physical layer.

Ö

If the IE "Added or Reconfigured DL TrCH information" is included then for the transport channel identified by the IE "DL Transport Channel Identity" the UE shall:

1> if the choice "DL parameters" is set to 'HSDSCH':

2> if the IE "HARQ Info" is included:

3> perform the actions specified in subclause 8.6.5.6b.

2> if the value of the IE "MAC-hs reset indicator" is TRUE:

3> reset the MAC-hs entity.

Ö

If the IE "Downlink HS-PDSCH Information" is included and the UE would enter CELL_DCH state according to subclause 8.6.3.3 applied on the received message, the UE shall:

1> if the IE "New H-RNTI" is included:

2> perform the actions as specified in subclause 8.6.3.1b.

1> if the IE "HS-SCCH Info" is included:

2> act as specified in subclause 8.6.6.33.

1> if the IE "Measurement Feedback Info" is included:

2> act as specified in subclause 8.6.6.34.

1> For FDD, if, as a result of the received message, the variable H_RNTI is set and the UE has a stored IE "HS-SCCH Info" and a stored IE "Measurement Feedback Info"; and

1> For FDD, if the UE has received IE "Uplink DPCH Power Control Info" and stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor; and

1> For FDD, if the UE has stored IEs "MAC-hs queue to add or reconfigure list", "MAC-d PDU size Info" and "RB Mapping Info" corresponding to the HS-PDSCH configuration;

2> set the variable HS_DSCH_RECEPTION to TRUE;

2> start HS-DSCH reception procedures according to the stored HS-PDSCH configuration:

3> as stated in subclause 8.6.3.1b for the IE "H-RNTI";

3> in subclause 8.6.6.33 for the IE "HS-SCCH Info"; and

3> in subclause 8.6.6.34 for the IE "Measurement Feedback Info".

Ö

If the IE "HS-SCCH Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> in the case of FDD:

2> receive the HS-SCCH(s) according to the IE "HS-SCCH channelisation code" on the serving HS-DSCH radio link applying the scrambling code as received in the IE "DL Scrambling code".

Ö

If the IE "Measurement Feedback Info" is included, the UE shall:

1> store the received configuration.

When the variable HS_DSCH_RECEPTION is set to TRUE the UE shall:

1> use the information for the channel quality indication (CQI) procedure in the physical layer on the serving HS-DSCH radio link.

Reference

3GPP TS 25.331 clauses 8.2.2, 8,6,3,1, 8.6.3.1b, 8.6.5.6, 8.6.6.32, 8.6.6.33, 8.6.6.34

8.2.1.X.3 Test purpose

To confirm that the UE establishes a radio bearer mapped to HS-DSCH according to the received RADIO BEARER SETUP message.

8.2.1.X.4 Method of test

Initial Condition

System Simulator: 2 cellsñCell 1 is active and cell 6 is inactive.

SYSTEM INFORMATION BLOCK TYPE 3 (see specific message contents)

UE: PS_DCCH_FACH (state 6-8) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

Table 8.2.1.X

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec (FDD)	dBm/ 3.84 MHz	-55	-55	Off	-55
P-CCPCH RSCP (TDD)	dBm	-55	-55	Off	-55

Table 8.2.1.X illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings from columns "T0" to "T1", whenever the description in multi-cell condition specifies the transmission power settings for cell 1 and cell 6.

The UE is in CELL_FACH state of cell 1 and only signalling radio bearers have been established. SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.1.X. The SS switches its downlink transmission power settings to columns "T1".

The SS transmits a RADIO BEARER SETUP message to the UE. This message requests the establishment of radio access bearer mapped to HS-DSCH using a 384 kbps and uplink DCH restricted to 64 kbps. After the UE receives this message, it configures them and establishes a radio access bearer in cell 6. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER SETUP	
2	→		RADIO BEARER SETUP COMPLETE	SS receives this message from Cell 6.
3	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

System Information Block Type 3 (FDD)

Use the default system information block with the same type specified in clause 9 TS 34.108, with the following exceptions:

Information Element	Value/remark
- Sintersearch	10dB

RADIO BEARER SETUP (Step 1)

Use the same message as specified in clause 9 TS 34.108 for ì Packet to CELL_DCH / HS-DSCH from CELL_FACH in PS", with the following exceptions:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions:
- PDCP info	Not present
- Transmission RLC discard	
- MAX_DAT	10
- Transmission window size	256
- Timer_RST	1000
- Max_RST	12
- Timer_poll_prohibit	50
- Timer_poll	400
- Poll_Windows	80
- Receiving window size	2047
- Downlink RLC status info	
- Timer_status_prohibit	50
UL Transport channel information for all transport channels	
- CHOICE Gain Factors	Computed Gain Factors (The last TFC is set to Signalled Gain Factors)
- Gain factor~~facrot~~ β c	10 (below 64 kbps) 8 (higher than 64 kbps) ~~(Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)~~
- Gain factor β d	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Frequency info	
- CHOICE mode	FDD
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Maximum allowed UL TX power	24dBm
CHOICE channel requirement	
- Δ_{ACK}	6
- Δ_{NACK}	6
Downlink HS-PDSCH Information	
- Measurement Feedback Info	
- POhsdsch	9dB
- CQI Feedback cycle, k	10ms
- Δ_{CQI}	3
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	350

8.2.1.X.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.3.X Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (stop of HS-DSCH reception with frequency modification)

8.2.3.X.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.3.X.2 Conformance requirement

The variable HS_DSCH_RECEPTION shall be set to "TRUE" only when all the following conditions are met:

1> the UE is in CELL_DCH state;

1> the variable H_RNTI is set;

1> the UE has a stored IE "HS-SCCH info";

1> for FDD:

2> one of the radio links in the active set is configured as the serving HS-DSCH radio link;

2> the UE has stored the following IEs:

- IE "Measurement Feedback Info";
- IE "Uplink DPCH Power Control Info" including stored Δ_{ACK}, Δ_{NACK} and Ack-NACK Repetition factor;
- IE "HARQ info".

1> for 3.84 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Timeslot Configuration".

1> for 1.28 Mcps TDD, the UE has stored the following IE:

- IE "HS-PDSCH Midamble Configuration".

1> there is at least one RB mapped to HS-DSCH;

1> at least for one of the RBís mapped to HS-DSCH, there is at least one MAC-hs queue (including the IE "MAC-d PDU size Info") configured for the concerning MAC-d flow;

NOTE: To enable or disable HS-DSCH reception, the UTRAN has the possibility to add/remove the concerning HS-DSCH related RB mapping options, add/remove the concerning MAC-d flows or, for FDD, add/remove the serving HS-DSCH radio link.

If any of the above conditions is not met and the variable HS_DSCH_RECEPTION is set to TRUE, the UE shall:

1> set the variable HS_DSCH_RECEPTION to FALSE;

1> stop any HS_SCCH reception procedures;

1> stop any HS-DSCH reception procedures;

1> clear the variable H_RNTI and remove any stored H-RNTI;

1> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

1> release all HARQ resources;

1> no long consider any radio link to be the HS-DSCH serving radio link.

NOTE: If configured for HS-DSCH and not explicitly indicated as being cleared, the UE will have still stored the IEs "HARQ info", "Added or Reconfigured MAC-d flow", "RB mapping Info" and "Downlink HS-PDSCH information".

Ö

Whenever the variable HS_DSCH_RECEPTION is set to FALSE, the UE shall:

1> not perform HS_SCCH reception procedures;

1> not perform HS-DSCH reception procedures.

Reference

3GPP TS 25.331 clauses 8.5.25.

8.2.3.X.3 Test purpose

To confirm that the UE stops HS-DSCH reception when UE releases PS RAB according to the received RADIO BEARER RELEASE message.

8.2.3.X.4 Method of test

Initial Condition

System Simulator: 2 cells ñ Cell 1 is active and cell 6 is inactive ~~2s~~

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS initiates P24 to set up CS RAB.
~~(Refering to 34.108(Version5.2.0), P24 can not make UE enter ì PS+CSDCCH+DTCH DCH(State 6-14)î from ì PS-DCCH+DTCH_HS_DSCH (state 6-17)î)~~Then SS transmits a RADIO BEARER RELEASE message to the UE. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1	←→		P24	SS establishes CS RAB.
2	←		RADIO BEARER RELEASE	SS releases PS RAB.
3	→		RADIO BEARER RELEASE COMPLETE	
4	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.

RADIO BEARER RELEASE (Step 2)

Use the same message as specified for "Packet to CELL_DCH from CELL_DCH / HS-DSCH in PS" in 34.108, except for the following:

Information Element	Value/remark
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 Same uplink UARFCN as used for cell 6 Same downlink UARFCN as used for cell 6
Downlink information for each radio links - Primary CPICH info - Primary Scrambling Code	 350

8.2.3.X.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.Y Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success (stop of HS-DSCH reception with frequency modification)

8.2.3.Y.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.3.Y.2 Conformance requirement

If after state transition the UE leaves CELL_DCH state, the UE shall, after the state transition:

1> stop any HS-DSCH reception procedures according to the stored HS-PDSCH configuration;

1> clear any stored HS-PDSCH configuration;

1> remove any H-RNTI stored;

1> clear the variable H_RNTI;

1> set the variable HS_DSCH_RECEPTION to FALSE.

Reference

3GPP TS 25.331 clauses 8.2.2.3.

8.2.3.Y.3 Test purpose

To confirm that the UE stops HS-DSCH reception when UE releases CS RAB according to the received RADIO BEARER RELEASE message.

8.2.3.Y.4 Method of test

Initial Condition

System Simulator: ~~1~~2 cells ñ Cell 1 is active and cell 6 is inactive

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH

Test Procedure

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in CELL_DCH state and has a radio bearer mapped on HS-DSCH established. The SS initiates P24 to set up CS RAB.

~~(Refering to 34.108(Version5.2.0), P24 can not make UE enter a state of establishing CS RAB from ì PS-DCCH+DTCH_HS_DSCH (state 6-17)î.)~~Then SS transmits a RADIO BEARER RELEASE message to the UE~~(to release CS RAB or CS and PS RAB?)~~. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	← →		P25	See below for the specific message content used in RADIO BEARER SETUP message (Step0).
1	← →		P24	SS establishes CS RAB
2	←		RADIO BEARER RELEASE	SS releases CS RAB.
3	→		RADIO BEARER RELEASE COMPLETE	
4	← →		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108~~, except for the following:~~

~~Information Element~~	~~Value/remark~~
~~Added or Reconfigured DL TrCH information~~	~~Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10.~~

RADIO BEARER RELEASE (Step 2)

Use the same message as specified for "Speech to CELL_FACH from CELL_DCH in CS"~~" Packet to CELL_FACH from CELL_DCH / HS-DSCH in PS"~~ in 34.108, except for the following:

Information Element	Value/remark
RB information to release - RB identity	Same as the set defined in RADIO BEARER REALESE message found in TS 34.108 clause 9 under condition A8, including the following IEs: 23
Deleted DL TrCH Information - Downlink transport channel type - DL HS-DSCH MAC-d flow identity	Same as the set defined in RADIO BEARER REALESE message found in TS 34.108 clause 9 under condition A8, including the following IEs: HS-DSCH 0
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 Same uplink UARFCN as used for cell 6 Same downlink UARFCN as used for cell 6

8.2.3.Y.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.3.1.X Cell Update: Transition from CELL_DCH to CELL_FACH (stop of HS-DSCH reception with frequency modification)

8.3.1.X .1 Definition

(All UEs which support FDD and HS-PDSCH.)

8.3.1.X .2 Conformance requirement

1> Radio link failure:

Ö

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6; or

Ö

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

Ö

1> if HS-DSCH is configured:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to subclause 8.5.17;

2> select Secondary CCPCH according to subclause 8.5.19;

2> use the transport format set given in system information as specified in subclause 8.6.5.1.

Reference

3GPP TS 25.331 clauses 8.3.1.2

8.3.1.X .3 Test purpose

To confirm that the UE stops HS-DSCH reception after a radio link failure in CELL_DCH during HS-DSCH reception.

8.3.1.X .4 Method of test

Initial Condition

System Simulator: ~~1~~2 cells ñ Cell 1 is active and cell 6 is inactive.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.X

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.X illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.X. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 6. After that, it shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH to SS.

The SS transmits a CELL UPDATE CONFIRM message which requests the UE to transit to CELL_FACH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1				SS configures cell 1 and ~~2~~6 according to column "T1" in table 8.3.1.~~26~~X. SS starts to listen to the uplink CCCH of cell ~~2~~6.
2				The UE detects the radio link failure and stops reception of HS-DSCH.
3	→		CELL UPDATE	The UE shall find a new cell ~~2~~6 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108.

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to ìRadio link failureî

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9 with the exception of the following IEs:

Information Element	Value/remark
New C-RNTI	'0101 0101 0101 0101 0101'
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE
RB information to reconfigure list	~~Same as the set defined in RADIO BRAERER RECONFIGURATION message found in TS34.108 clause 9 under condition A5.~~
- RB information to reconfigure	(AM DCCH for RRC)
- RB identity	2
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DCCH for NAS_DT High priority)
- RB identity	3
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present

- RB information to reconfigure	(AM DCCH for NAS_DT Low priority)
- RB identity	4
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
- RB information to reconfigure	(AM DTCH)
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	
- CHOICE Uplink RLC mode	AM RLC
- Transmission RLC discard	
- SDU discard mode	No discard
- MAX_DAT	15
- Transmission window size	128
- Timer_RST	600
- Max_RST	4
- Polling info	
- Timer_poll_prohibit	250
- Timer_poll	250
- Poll_PDU	Not Present
- Poll_SDU	1
- Last transmission PDU poll	TRUE
- Last retransmission PDU poll	TRUE
- Poll_Window	99
- Timer_poll_periodic	Not Present
- CHOICE Downlink RLC mode	AM RLC
- In-sequence delivery	TRUE
- Receiving window size	128
- Downlink RLC status info	
- Timer_status_prohibit	200
- Timer_EPC	Not Present
- Missing PDU indicator	TRUE
- Timer_STATUS_periodic	Not Present
- RB mapping info	Not Present
- RB stop/continue	Not Present
Deleted DL TrCH Information	Same as the set defined in RADIO BEARER RELEASE message found in TS 34.108 clause 9 under condition A9.
Frequency info	
- UARFCN uplink (Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink (Nd)	Same downlink UARFCN as used for cell 6

34.8.3.1.X .5 Test requirement

After step 1.2, the UE shall transmit a CELL UPDATE message and stop HS-DSCH reception.

8.3.1.Y Cell Update: Transition from CELL_DCH to CELL_DCH (with active HS-DSCH reception and frequency modification)

8.3.1.Y .1 Definition

(All UEs which support FDD and HS-PDSCH.)

8.3.1.Y .2 Conformance requirement

1> Radio link failure:

Ö

3> if the UE is in CELL_DCH state and the criteria for radio link failure are met as specified in subclause 8.5.6; or

Ö

4> perform cell update using the cause "radio link failure".

When initiating the URA update or cell update procedure, the UE shall:

Ö

1> if HS-DSCH is configured:

2> stop any HS-DSCH reception procedures;

2> clear any stored HS-PDSCH configuration;

2> act as if the IE "MAC-hs reset indicator" is received and set to TRUE;

2> release all HARQ resources;

2> remove any H-RNTI stored;

2> clear the variable H_RNTI;

2> set the variable HS_DSCH_RECEPTION to FALSE.

Reference

3GPP TS 25.331 clauses 8.3.1.2

8.3.1.Y .3 Test purpose

To confirm that the UE keeps the RB mapping option for HS-DSCH reception after a radio link failure in CELL_DCH during HS-DSCH reception.

8.3.1.Y .4 Method of test

Initial Condition

System Simulator: 2 cells ñ Cell 1 is active and cell 6 is inactive.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.Y

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.Y illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.

The UE is in CELL_DCH state and only signalling radio bearers have been established. SS initiates P25 to make the UE to move to state 6-17 as specified in TS 34.108 clause 7.4. The UE is in the CELL_DCH state and has a radio bearer established that is mapped to HS-DSCH. SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.Y. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell ~~2~~6. After that, it shall then enter CELL_FACH state and transmit a CELL UPDATE message on the uplink CCCH to SS.

The SS transmits a CELL UPDATE CONFIRM message which requests the UE to transit to CELL_DCH state and start reception of HS-DSCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0	←→		P25	See below for the specific message content used in RADIO BEARER SETUP message. (Step 0)
1				SS configures cell 1 and ~~2~~6 according to column "T1" in table 8.3.1.~~26~~X. SS starts to listen to the uplink CCCH of cell ~~2~~6.
2				The UE detects the radio link failure and stops reception of HS-DSCH.
3	→		CELL UPDATE	The UE shall find a new cell ~~2~~6 and the value "radio link failure" shall be set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	
5	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

RADIO BEARER SETUP (Step 0)

Use the same message as specified for " Packet to CELL_DCH / HS-DSCH from CELL_DCH in PS" in 34.108, except for the following:

Information Element	Value/remark
RAB information for setup	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, with the following exceptions
- PDCP info	Not present
- Transmission RLC discard	
- MAX_DAT	10
- Transmission window size	256
- Timer_RST	1000
- Max_RST	12
- Timer_poll_prohibit	50
- Timer_poll	400
- Poll_Windows	80
- Receiving window size	2047
- Downlink RLC status info	
- Timer_status_prohibit	50
UL Transport channel Information for all transport channels	
- CHOICE Gain Factors	Computed Gain Factors (The last TFC is set to Signalled Gain Factors)
- Gain factor β c	10 (below 64 kbps) 8 (higher than 64 kbps)
- Gain factor β d	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
Added or Reconfigured DL TrCH information	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10, with the following exception:
- MAC-d PDU size	656
Maximum allowed UL TX power	24dBm
CHOICE channel requirement	
- Δ_{ACK}	6
- Δ_{NACK}	6
Downlink HS-PDSCH Information	
- Measurement Feedback Info	
- POhsdsch	9dB
- CQI Feedback cycle, k	10ms
- Δ_{CQI}	3

CELL UPDATE (Step 3)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
- S-RNTI	Check to see if set to value assigned in cell 1.
- SRNC Identity	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to ìRadio link failureî

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101 0101'
RRC State indicator	CELL_DCH
RLC re-establish indicator (RB2, RB3 and RB4)	TRUE
UL Transport channel information common for all transport channels - CHOICE Gain Factors - Gain factor~~facrot~~ β c	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions; Computed Gain Factors (The last TFC is set to Signalled Gain Factors) 10 (below 64 kbps) 8 (higher than 64 kbps) ~~(Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)~~
- Gain factor β d	15 (Not Present if the CHOICE Gain Factors is set to Computed Gain Factors)
DL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9.
Added or Reconfigured DL TrCH information list - MAC-d PDU size	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A10. 656
Frequency info - UARFCN uplink (Nu) - UARFCN downlink (Nd)	 Same uplink UARFCN as used for cell 6 Same downlink UARFCN as used for cell 6
CHOICE channel requirement - Δ_{ACK} - Δ_{NACK}	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions; 6 6
Downlink HS-PDSCH Information - Measurement Feedback Info - POhsdsch - CQI Feedback cycle, k - Δ_{CQI}	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exceptions; 9dB 10ms 3
Downlink information common for all radio links - Timing indicator	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exception; Initialise
Downlink information per radio link list - Primary CPICH info - Primary scrambling code	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A9, with the following exception; 350

8.3.1.Y .5 Test requirement

After step ~~1~~2, the UE shall transmit a CELL UPDATE message.

After step 4, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message and start reception of HS-DSCH.

3GPP TSG-T1 Meeting #25
St Paulís Bay, Malta, 1st - 5th November 2004

Tdoc ⌘ T1-041946

CR-Form-v7.1

CHANGE REQUEST

⌘ **34.123-1** **CR** **1019** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Updating ëConformance requirementí in test case 11.1.4.1 and addition of lower layer signalling.
Source:	⌘	NEC Corporation
Work item code:	⌘	TEI
Date:	⌘	04/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change:	⌘	1. ëConformance requirementí not in line with the core specification. 2. In ëExpected sequenceí purpose of the Step 8 is to re-confirm that secondary PDP context has been successfully activated. Comment in this test step does not specify which PDP context is to be modified: primary or secondary. Additional comment is needed to avoid ambiguity. 3. Lower layersí signalling not present in ëExpected sequenceí. 4. ëSpecific message contentsí could be more precise.
Summary of change:	⌘	1. ëConformance requirementí replaced with copy of clause 6.1.3.2.1 from 24.008. 2. Added test steps 1a, 1b, 1c and 2a to clarify lower layer signalling. 3. Added clarification in steps 3, 5 and 6. 4. Updated ëSpecific message contentsí.
Consequences if not approved:	⌘	Test sequence will remain unclear and might lead to incorrect test case implementation..

Clauses affected:	⌘	11.1.4.1.1.2, 11.1.4.1.1.4 and 11.1.4.1.1.5				
Other specs affected:	⌘	**Y**	**N**	Other core specifications	⌘	
			X			
		X		Test specifications		34.123-3
			X	O&M Specifications		

Other comments:	⌘	Applicable for all previous releases.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

11.1.4 Secondary PDP context activation procedures

11.1.4.1 Successful Secondary PDP Context Activation Procedure Initiated by the UE

11.1.4.1.1 QoS Offered by Network is the QoS Requested

11.1.4.1.1.1 Definition

11.1.4.1.1.2 Conformance requirement

In order to request a PDP context activation with the same PDP address and APN as an already active PDP context, the UE shall send an ACTIVATE SECONDARY PDP CONTEXT REQUEST message to the network, enter the state PDP-ACTIVE-PENDING and start timer T3380. The message shall contain the selected NSAPI. The UE shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the UE. The message shall also include a QoS profile, a requested LLC SAPI and the Linked TI. The QoS profile is the requested QoS. If present, the TFT shall be sent transparently through the SGSN to the GGSN to enable packet classification and policing for downlink data transfer.

Upon receipt of an ACTIVATE SECONDARY PDP CONTEXT REQUEST, the network shall validate the message by verifying the TI given in the Linked TI IE to be any of the active PDP context(s). The same GGSN address shall be used by the SGSN as for the already established PDP context(s) for that PDP address. The network shall select a radio priority level based on the QoS negotiated and shall reply with an ACTIVATE SECONDARY PDP CONTEXT ACCEPT message, if the request can be accepted.

NOTE 1: If the UE requested a value for a QoS parameter that is not within the range specified by 3GPP TS 23.107, the network should negotiate the parameter to a value that lies within the specified range.

Upon receipt of the message ACTIVATE SECONDARY PDP CONTEXT ACCEPT, the UE shall stop timer T3380 and enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the UE, the UE shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

In UMTS, both SGSN and UE shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM Routing Area Update is performed, the new SGSN shall initiate establishment of the logical link using the negotiated LLC SAPI, the negotiated QoS profile and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.

An UE, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while an UE which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network. When the UE uses a valid LLC SAPI, the network shall return a valid LLC SAPI. The network shall return the ì LLC SAPI not assignedî value only when the UE uses the ì LLC SAPI not assignedî value.

NOTE 2: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

~~In order to request a secondary PDP context activation with the same PDP address and APN as an already active PDP context, the UE shall send an ACTIVATE SECONDARY PDP CONTEXT REQUEST message to the network, enter the state PDP-ACTIVE-PENDING and start timer T3380. The message contains the selected NSAPI, a QoS profile, a requested LLC SAPI and the linked TI.~~

~~If the QoS offered by the network is the same as the QoS requested by the UE, then upon receipt of the message ACTIVATE SECONDARY PDP CONTEXT ACCEPT, the UE shall stop timer T3380.~~

~~In GSM the UE shall initiate establishment of the logical link for the LLC SAPI indicated by the network, with the offered QoS and selected radio priority level, if no logical link has been already established for that SAPI.~~

~~Although not used in UMTS, LLC SAPI shall be included in the messages, in order to support handover between UMTS and GSM networks.~~

Reference

3GPP TS 24.008 clauses 6.1.3.2 and 6.1.3.2.1.

11.1.4.1.1.3 Test purpose

To test the behaviour of the UE when SS responds to a Secondary PDP context activation request with the requested QoS.

11.1.4.1.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE and is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Method of context activation
- Secondary PDP context activation supported yes/no

Test procedure

A PDP context activation is requested by the user and accepted by the SS. Secondary PDP context activation is requested by the user. On receipt of the ACTIVATE SECONDARY PDP CONTEXT REQUEST message an ACTIVATE SECONDARY PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE SECONDARY PDP CONREXT REQUEST messages are sent by the UE. The SS then sends a MODIFY PDP CONTEXT REQUEST message to which the UE shall reply with a MODIFY PDP CONTEXT ACCEPT message to ensure the context has been set up.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
1a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to either Originating Streaming Call, Originating Interactive Call or Originating Background Call
1b	→		SERVICE REQUEST	Service type = "signalling"
1c		SS		The SS starts integrity protection.
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context
2a		SS		The SS establishes the RAB
3	←		ACTIVATE PDP CONTEXT ACCEPT	The SS ~~A~~accepts the PDP context with the requested QoS
4	UE			The UE ~~i~~initiates a secondary PDP context activation
5	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	The UE ~~R~~requests a Secondary PDP context activation, enters the state PDP-ACTIVE-PENDING and starts timer T3380. NSAPI IE value is different from the value in Step 2.
6	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	The SS ~~A~~accepts the Secondary PDP context activation with the requested QoS
7	SS			The SS ~~W~~waits for T3380 seconds to ensure no further activate request messages come from the UE
8	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to the UE for ~~the activated~~ secondary PDP context
9	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the ~~network~~ SS. . This re-confirms that step 5 was correctly executed in the UE.~~to show context is activated~~

Specific message contents

Step 2: TI flag (Octet 1, Bit 8) in TI IE is set to ë0í and value of TIO (Octet 1, Bits 765) is set in range 0-6.

Step 3: TI flag in TI IE is set to ë1í and value of TIO is the same as in Step 2.

Step 5:

- The Linked TI information element in ACTIVATE SECONDARY PDP CONTEXT REQUEST message specifies the TI for the PDP context already activated. The SS can derive PDP address for the secondary PDP context ~~from~~ from the Linked TI~~.~~.
- TI flag in TI IE is set to ë0í and value of TIO is the same as in Step 2 and 3
- NSAPI IE value is different from NSAPI value in Step 2

Step 6 and 8: TI flag in TI IE is set to ë1í and value of TIO is the same as in Step 5.

Step 9: TI flag in TI IE is set to ë0í and value of TIO is the same as in Step 5.

11.1.4.1.1.5 Test requirements

To pass the test the UE shall:

- when the SS responds to ~~a~~ Secondary PDP context activation request initiated by the UE, with the requested QoS, the UE shall complete the Secondary PDP context activation procedure. To check if the Secondary PDP context activation was successful, the SS shall request PDP context modification and UE shall accept it.

<END OF MODIFIED SECTION>

3GPP TSG-T1 Meeting #25
Malta, 1st - 5th Nov 2004

Tdoc ⌘ T1-041947

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1020** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

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Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Addition of inter-RAT handover test case to 34.123-1 (Revision of T1-041582)
Source:	⌘	Sasken Communication Technologies Limited
Work item code:	⌘	TEI
Date:	⌘	03/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Current version of the test specification does not have test case that cover: ìTo verify that in UTRAN cell when UE (not supporting DTM) is in speech call active state and PS data call is established, UE performs handover to GSM RAT after receiving HANDOVER FROM UTRAN COMMANDî
Summary of change:	⌘	A new inter-RAT handover test case is added to the test specification
Consequences if not approved:	⌘	This feature of the UE will remain untested

Clauses affected:	⌘	8.3.7			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	34.123-2
		X /	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘				

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.7.16 Inter system handover from UTRAN/To GSM/Simultaneous CS and PS domain services/Success/TBF Establishment Success

8.3.7.16.1 Definition

8.3.7.16.2 Conformance requirement

The purpose of the inter-RAT handover procedure is to, under the control of the network, transfer a connection between the UE and UTRAN to another radio access technology (e.g. GSM). This procedure may be used in CELL_DCH state. This procedure may be used when no RABs are established or when the established RABs are only in the CS domain or when the established RABs are in both CS and PS domains

The UE shall be able to receive a HANDOVER FROM UTRAN COMMAND message and perform an inter-RAT handover, even if no prior UE measurements have been performed on the target cell.

Ö

For a UE in CELL_DCH state using both CS and PS Domain services the Inter-RAT handover procedure is based on measurement reports from the UE but initiated from UTRAN.

The UE performs the Inter-RAT handover from UTRA RRC Connected Mode to GSM Connected Mode first. When the UE has sent handover complete message to GSM / BSS the UE initiates a temporary block flow towards GPRS and sends a RA update request.

If the Inter-RAT handover from UTRA RRC Connected Mode to GSM Connected Mode was successful the handover is considered as successful regardless if the UE was able to establish a temporary block flow or not towards GPRS.
In case of Inter-RAT handover failure the UE has the possibility to go back to UTRA RRC Connected Mode and re-establish the connection in the state it originated from

Reference(s)

TS 25.331 Clause 8.3.7, B.6.1

8.3.7.16.3 Test purpose

To test that in UTRAN cell when UE (not supporting DTM) is in speech call active state and PS data call is established, UE performs handover to GSM RAT after receiving HANDOVER FROM UTRAN COMMAND.

8.3.7.16.4 Method of test

Initial conditions

System Simulator: 2 cells - Cell 1 is UTRAN, Cell 9 is GPRS with BCCH. 51.010 clause 40.1.1 shall be referenced for the default parameters of cell 9

UE: Registered Idle Mode on CS/PS (state 7) as specified in clause 7.4 of TS 34.108

Related ICS/IXIT statements

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Conversational /Speech UL: 12.2kbps DL: 12.2 kbps /CS RAB+ Interactive or Background UL: 64kbps DL: 64kbps /PS RAB + uplink: 3.4 DL: 3.4 kbps SRBs
- UE supports UE operation mode A: PS and CS simultaneously
- UE supports GPRS operation mode class B

Foreseen final state of the UE

UE is in packet Idle mode on cell 9

Test Procedure

The SS brings the UE into call active state (CC state U10) with conversational/speech /uplink: 12.2 DL: 12.2 kbps/CS RAB + UL: 3.4 DL: 3.4 kbps SRBs. During call active state, SS configures PS RAB with Interactive or Background/UL: 64 kbps DL: 64 kbps configuration. The SS configures an appropriate traffic channel on the GSM cell. SS sends a HANDOVER FROM UTRAN COMMAND indicating the traffic channel of the target GSM cell to the UE through DCCH of the serving UTRAN cell. After the UE receives the command it shall configure itself accordingly and switch to the new channel of the GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS in GSM cell. SS receives GPRS SUSPENSION REQUEST from the UE

SS disconnects the CS call and releases the RR connection.

Once RR connection is released, an RAU procedure is performed. To check that PDP context is active, SS sends MODIFY PDP CONTEXT REQUEST and assigns new QoS in GPRS cell. The UE may or may not accept the new QoS and replies to the SS accordingly.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	↔			The SS brings the UE into UTRAN U10 state in cell 1 with configuration: Conversational/Speech/uplink: 12.2 DL: 12.2 kbps/CS RAB + uplink: 3.4 DL: 3.4 kbps SRBs
2	↔		SS executes Procedure P19 (clause 7.4.2.8.1.2) specified in TS 34.108	Session Setup is initiated from UE side. PS RAB configuration is Interactive/Background UL: 64 kbps DL: 64 kbps/PS RAB + UL: 3.4kbps DL: 3.4kbps SRBs
3			SS	The SS configures a traffic channel on cell 9 for GSM FR
4	←		HANDOVER FROM UTRAN COMMAND	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM
5	UE			The UE accepts the handover command and switches to the GSM traffic channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
6	→		HANDOVER ACCESS	The SS receives this burst on the traffic channel of cell 9 (GSM cell) It implies that the UE has switched to GSM cell.
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	→		HANDOVER ACCESS	
10	←		PHYSICAL INFORMATION	
11	→		SABM	
12	←		UA	
13	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
14	→		GPRS SUSPENSION REQUEST	UE sends GPRS SUSPENSION REQUEST on FACCH.Suspension cause value is not checked
15	←		CHANNEL RELEASE	SS disconnects the CS call and releases the RR connection. The GPRS Resumption IE is included and is set to ìresumption of GPRS services successfully acknowledged.î
16	→		ROUTING AREA UPDATE REQUEST	GMM ìupdate typeî = ëcombined RA/LA updatingí
17	←		ROUTING AREA UPDATE ACCEPT	GMM. P-TMSI is included
18	→		ROUTING AREA UPDATE COMPLETE	
19	←		MODIFY PDP CONTEXT REQUEST	SS requests the modification of a PDP context, with a new QoS (peak throughput is changed to ë011î)
A20	→		MODIFY PDP CONTEXT ACCEPT	UE behaviour type A: Accept the PDP context modification
B20	→		DEACTIVATE PDP CONTEXT REQUEST	UE behaviour type B: Initiate the PDP context deactivation. Cause set to 'QoS not accepted'
B20a	←		DEACTIVATE PDP CONTEXT ACCEPT	UE behaviour type B: Accept the PDP context deactivation.
B20b	→		DETACH REQUEST	UE behaviour type B: A non-auto attach UE may (optionally) send a Detach Request. The SS shall wait up to 'T3390' seconds for the Detach Request.
B20c	←		DETACH ACCEPT	If the UE transmitted a Detach Request message in step B20b then the SS responds with a Detach Accept message.

Specific message contents

HANDOVER FROM UTRAN COMMAND (step 4)

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE. The first/ leftmost bit of the bit string contains the most significant bit of the MAC-I.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
RAB Info	
- RAB identity	0000 0001B The first/ leftmost bit of the bit string contains the most significant bit of the RAB identity.
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T314
Inter-system message	
- CHOICE System type	GSM
- Frequency Band	Set to "GSM/ PCS 1900" if GSM/ PCS 1900 is used in this test. Otherwise set to "GSM/DCS 1800 Band"
- CHOICE GSM message	GSM message List
- Message	GSM HANDOVER COMMAND formatted and coded according to GSM specifications as BIT STRING (1..512). The first/ *leftmost/ most significant* bit of the bit string contains bit 8 of the first octet of the GSM message. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 2 in clause 26.6.5.1 of GSM 51.010, except that the CHANNEL MODE IE is included with value = speech full rate

8.3.7.16.5 Test requirements

At step 6 the SS receives a handover access burst on the traffic channel of the GSM cell indicating that the UE has switched to the GSM cell.

At step 13 the SS receives a HANDOVER COMPLETE message indicating a successful handover to the GSM cell.

At step 16 SS receives ROUTING AREA UPDATE REQUEST message.

After step 19, SS should either receive DEACTIVATE PDP CONTEXT REQUEST message with cause as ìQos not acceptedî or receive a MODIFY PDP CONTEXT ACCEPT message from UE

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Malta, 1-5 Nov, 2004

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Agenda 8.8.3

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1021** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to low priority RRC test case 8.2.6.34
Source:	⌘	Motorola and MCC 160
Work item code:	⌘	TEI
Date:	⌘	28/10/2004
Category:	⌘	F
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	• Conformance Requirement not up to date • Incorrect message contents for Physical Channel Reconfiguration message targeting UE to move to Cell_PCH state.
Summary of change:	⌘	• Updated Conformance Requirements. • In message contents of Physical Channel Reconfiguration message (step 6), ëDownlink information common for all radio linksí deleted. • Editorial correction in test procedure
Consequences if not approved:	⌘	Test spec as specified is incorrect

Clauses affected:	⌘	8.2.6.34

	Y	N		
Other specs affected: ⌘		X	Other core specifications	⌘
		X	Test specifications	
		X	O&M Specifications	

Other comments:	⌘	Affects R99, REL-4, REL-5.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.6.34 Physical channel reconfiguration from CELL_FACH to CELL_PCH (Frequency band modification): Success

8.2.6.34.1 Definition

8.2.6.34.2 Conformance requirement

If the UE receives:

-a PHYSICAL CHANNEL RECONFIGURATION message;

it shall:

1> act upon all received information elements as specified in TS25.331 subclause 8.6, unless specified in the following and perform the actions below.

1> enter a state according to TS25.331 subclause 8.6.3.3.

In case the procedure was triggered by reception of a PHYSICAL CHANNEL RECONFIGURATION message, the UE shall:

1> transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH using AM RLC, using the old configuration before the state transition.

If after state transition the UE enters CELL_PCH state from CELL_FACH state, the UE shall, after the state transition and transmission of the response message:

1> if the IE "Frequency info" is included in the received reconfiguration message:

2> select a suitable UTRA cell according to [4] on that frequency.

2> if the UE finds a suitable UTRA cell on that frequency:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD), and the UE selected another cell than indicated by this IE or the received reconfiguration message did not include the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD):

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "cell reselection";

4> proceed as below.

2> else, if the UE can not find a suitable UTRA cell on that frequency but it finds a suitable UTRA cell on another frequency:

3> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

3> proceed as below.

1> if the IE "Frequency info" is not included in the received reconfiguration message:

2> if the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) is included the UE shall either:

3> ignore the content of the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD) and proceed as below;

2> or:

3> if the received reconfiguration message included the IE "Primary CPICH info" (for FDD) or "Primary CPCH info" (for TDD), and it is different from the current cell:

4> initiate a cell update procedure according to subclause 8.3.1 using the cause "Cell reselection";

4> proceed as below.

1> prohibit periodical status transmission in RLC;

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI;

1> start timer T305 using its initial value if timer T305 is not running and if periodical update has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity" in the variable TIMERS_AND_CONSTANTS;

1> select Secondary CCPCH according to subclause 8.5.19;

1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:

2> use the value in the IE "UTRAN DRX Cycle length coefficient" for calculating Paging occasion and PICH Monitoring Occasion as specified in subclause 8.6.3.2.

1> the procedure ends.

Reference

3GPP TS 25.331 clause 8.2.2.

8.2.6.34.3 Test purpose

1. To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.
2. To confirm that the UE transits from CELL_FACH to CELL_PCH according to the PHYSICAL CHANNEL RECONFIGURATION message.
3. To confirm that the UE selects a common physical channel in a different frequency.

8.2.6.34.4 Method of test

Initial Condition

System Simulator: 2 cells ñ Cell 1 is active and cell 6 is inactive.

UE: "Registered idle mode on PS" (state 3) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain supported by the UE. If the UE supports both CS and PS domains, the initial UE state shall be "Registered idle mode on CS/PS".

Test Procedure

Table 8.2.6.34

Parameter	Unit	Cell 1		Cell 6	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 2	
CPICH Ec	dBm/ 3.84 MHz	-55	-72	Off	-55

Table 8.2.6.34 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. SS switches the power settings between columns "T0" and "T1", whenever the description in multi-cell condition specifies a reverse in the transmission power settings for cell 1 and cell 6.

The UE is idle mode of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.34. SS requests operator to make an outgoing call. The SS and UE execute procedure P6. Next The SS and the UE execute procedure P10 and then execute procedure P14. The SS switches its downlink transmission power settings to columns "T1" and. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message ~~not~~ including IE "Frequency info" and IE "Primary CPICH info" of cell 6. The UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enter CELL_PCH state in cell 6. Upon completion of the procedure, the SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.6.34. SS requests operator to make an outgoing call.
2	←→		SS executes procedure P6 (clause 7.4.2.2.2) specified in TS 34.108.	
3	←→		SS executes procedure P10 (clause 7.4.2.4.2) specified in TS 34.108.	
4	←→		SS executes procedure P14 (clause 7.4.2.6.2) specified in TS 34.108.	
5				The SS switches its downlink transmission power settings to columns "T1" in table 8.2.6.34.
6	←		PHYSICAL CHANNEL RECONFIGURATION	Including IE "Frequency info" and IE "Primary CPICH info" of Cell 6
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The UE transmit this message on the common physical channel in cell 1.
8				The SS waits for 5 s.
9	←→		CALL C.4	If the test result of C.4 indicates that UE is in CELL_PCH state, the test passes, otherwise it fails.

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 6)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9 with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
~~Downlink information common for all radio links~~	
~~- Downlink DPCH info common for all RL~~	
~~- Timing Indicator~~	~~Maintain~~
Downlink information for each radio links	
- Primary CPICH info	
- Primary Scrambling Code	Set to same code as used for cell 6

8.2.6.34.5 Test requirement

After step 6 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC in cell 1.

After step 8 the UE shall be in CELL_PCH state in cell 6.

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041950

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1022** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Alignment of IE values used in Clause 12 to the core specification (Revision of T1-041561)
Source:	⌘	Nokia
Work item code:	⌘	TEI
Date:	⌘	03/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘ Some of the information element values used in the test specification do not match to the core specification TS 24.008.

Summary of change: ⌘

1. Attach type changed from ìPS attachî to ìGPRS attachî.
2. Attach type changed from ìPS attach while IMSI attachedî to ìGPRS attach while IMSI attachedî.
3. Attach type changed from ìCombined PS / IMSI attachî to ìCombined GPRS/IMSI attachî.
4. Attach result changed from ìCombined PS / IMSI attachedî to ìCombined GPRS/IMSI attachedî.
5. Attach result changed from ìPS only attachedî to ìGPRS only attachedî.
6. Cause value ìIllegal UEî changed to ìIllegal MSî.
7. Cause value ìPS services not allowedî changed to ìGPRS services not allowedî.
8. Cause value ìPS services not allowedî changed to ìGPRS services not allowedî.
9. Cause value ìRoaming not allowed in this areaî changed to ìRoaming not allowed in this location areaî.
10. Cause value ìPS service not allowed in this PLMNî changed to ìGPRS services not allowed in this PLMNî.
11. Cause value ìPS services and non-PS services not allowedî changed to ìGPRS services and non-GPRS services not allowedî.
12. Cause value ìUE identity cannot be derived by the networkî changed to ìMS identity cannot be derived by the networkî.
13. Detach type ìpower switched off, PS detachî changed to ìpower switched off, GPRS detachî.
14. Detach type ìnormal detach, PS detachî changed to ìnormal detach,

		GPRS detachî. 15. Detach type ìnormal detach, combined PS / IMSI detachî changed to ìnormal detach, combined GPRS / IMSI detachî.
Consequences if not approved:	⌘	Mismatch between the test specification and the core specification.

Clauses affected:	⌘	Clause 12.			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Affects R99, Rel-4 and Rel-5.			

How to create CRs using this form:

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

12 Elementary procedure for Packet Switched Mobility Management

12.1 Applicability, default conditions and default messages

All test cases for PS mobility management apply for all PS mobiles unless otherwise stated in a specific test. Within each test case, the ICS statement indicates whether the test shall be performed for mobiles that can only operate in mode - class A, only in mode - class C , or in both mode - class A and C. For some procedures, the mobile class is of no importance.

Note that only the layer 3 messages are described in the document. The mapping of the layer 3 messages to lower layers and the use of logical channels is not described in the present document.

The terms 'PS/CS mode of operation' and 'PS mode of operation' are not used in the present document with some exceptions. Instead the terms 'UE operation mode A' and 'UE operation mode C' are used.

If UE supports mode A and C; the operation mode change from C to A during the test and the resulting signalling caused by the mode change, are out of test scope and up to implementation.

The default conditions and default message contents not specified in this clause must be set as in "PS default conditions"

Below is a list of the RAI values and the corresponding RAC, LAC and MCC used in the test cases:

RAI-1: MCC1/MNC1/LAC1/RAC1 (Used if only one cell)

RAI-2: MCC2/MNC1/LAC1/RAC1

RAI-3: MCC1/MNC1/LAC2/RAC1

RAI-4: MCC1/MNC1/LAC1/RAC2

RAI-5: MCC1/MNC1/LAC1/RAC3

RAI-6: MCC2/MNC1/LAC2/RAC1

RAI-7: MCC2/MNC1/LAC1/RAC2

RAI-8: MCC1/MNC2/LAC1/RAC1

RAI-9: MCC1/MNC2/LAC2/RAC1

RAI10: MCC1/MNC2/LAC1/RAC2

RAI-11: MCC1/MNC3/LAC1/RAC1

RAI-12: MCC1/MNC1/LAC2/RAC2

If the User Equipment initial condition specifies that the mobile has a valid IMSI but the initial condition does not mention P-TMSI, than that shall be interpreted as that the mobile has no valid P-TMSI.

The tests are based on 3GPP TS 24.008.

12.2 PS attach procedure

This procedure is used to indicate for the network that the IMSI is available for traffic by establishment of a GMM context.

12.2.1 Normal PS attach

The normal PS attach procedure is a GMM procedure used by PS UEs of UE operation mode A or C to IMSI attach for PS services only.

12.2.1.1 PS attach / accepted

12.2.1.1.1 Definition

12.2.1.1.2 Conformance requirement

1) If the network accepts the PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.

2) If the network accepts the PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

3) If the network accepts the PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.3.1

12.2.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is allocated;

2) P-TMSI / P-TMSI signature is reallocated;

3) Old P-TMSI / P-TMSI signature is not changed.

12.2.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI.

2) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS reallocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.

3) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the old P-TMSI.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to the PS services only (see ICS). If this is not supported by the UE, goto step 26.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services. Paging cause: Terminating interactive call
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
7	->		SERVICE REQUEST	Service type = "paging response"
7a	SS			The SS starts integrity protection and releases the RRC connection.
8	UE			The UE is switched off or power is removed (see ICS).
8a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, ~~PS~~ GPRS detach'
9a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
10	UE			The UE is powered up or switched on and initiates an attach (see ICS).
10a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-2 Routing area identity = RAI-1
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	
14			Void	

Step	Direction		Message	Comments
	UE	SS		
14b			Void	
14c	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
14d	SS			SS verifies that the UE transmits an RRC CONNECTION REQUEST message. SS will reject this request. The IE "Establishment cause" is not checked.
15	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
16	UE			No response from the UE to the request. This is checked for 10 seconds.
17	UE			The UE is switched off or power is removed (see ICS).
17a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
18	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
18a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE			The UE is powered up or switched on and initiates an attach (see ICS).
19a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c	SS			The SS starts integrity protection.
21	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = 'GPRS~~PS~~ only attached'
22	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause: Terminating interactive call
22a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
22b			Void	
22c			Void	
23	->		SERVICE REQUEST	Service type = "paging response"
23aa	SS			The SS starts integrity protection and releases the RRC connection.
23a			Void	
23b			Void	
24	UE			The UE is switched off or power is removed (see ICS).
24a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
25	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'

Step	Direction		Message	Comments
	UE	SS		
25a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
26	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25a.

Specific message contents

None.

12.2.1.1.5 Test requirements

At step 2a, 10a and 19a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a and 22a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating Interactive Call".

At step 8a, 17a and 24a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, 11 and 20, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Mobile identity in the ATTACH REQUEST message and on the Mobile identity in the ATTACH ACCEPT message.

Case 1) The Mobile identity in the ATTACH REQUEST message is the IMSI and the Mobile identity in the ATTACH ACCEPT message is the P-TMSI.

At step5, UE shall:

- acknowledge the P-TMSI by sending the ATTACH COMPLETE message.

Case 2) The Mobile identity in the ATTACH REQUEST message is the P-TMSI and the Mobile identity in the ATTACH ACCEPT message is the new P-TMSI.

At step13, UE shall:

- acknowledge the new P-TMSI by sending the ATTACH COMPLETE message.

At step23, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.1.2 PS attach / rejected / IMSI invalid / illegal UE

12.2.1.2.1 Definition

12.2.1.2.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS, the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

3) If the network rejects a PS attach procedure from the User Equipment with the cause 'Illegal MS, the User Equipment shall delete the LAI.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'illegal MS.

12.2.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in

MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).

All three cells are operating in network operation mode II (in case of UE operation mode A).

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value '~~Illegal UE~~Illegal MS'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
				The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.
2	SS			The SS is set in network operation mode II.
				Set the cell type of cell A to the "Serving cell".
				Set the cell type of cell B to the "Non-Suitable cell".
				Set the cell type of cell C to the "Non-Suitable cell".
				(see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~'
				Mobile identity = P-TMSI-1
				Routing area identity = RAI-1
5	<-		ATTACH REJECT	GMM cause = 'Illegal MS'.
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Non-Suitable cell".
				Set the cell type of cell B to the "Serving cell".
				(see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
9	UE			The UE initiates an attach by MMI or by AT command.
10	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell C.
11	SS			Set the cell type of cell B to the "Non-Suitable cell".
				Set the cell type of cell C to the "Serving cell".
				(see note)
12	UE			Cell C is preferred by the UE.
13	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
14	UE			The UE initiates an attach by MMI or by AT command.
15	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
16	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
17	UE			The UE is powered up or switched on.
18	UE		Registration on CS	See TS 34.108
				This is applied only for UE in UE operation mode A.
				Parameter mobile identity is IMSI.
19	UE			The UE initiates an attach (see ICS).
20	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~'
				Mobile identity = IMSI
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c	SS			The SS starts integrity protection.

21	<-	ATTACH ACCEPT	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
22	->	ATTACH COMPLETE	
23	UE		The UE is switched off or power is removed (see ICS).
24	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
25	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.2.1.2.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, 10, 13 and 15, UE shall:

- not send the ATTACH REQUEST message to SS, even if there is an instruction of attach request from MMI or from AT command.

At step20, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

12.2.1.3 PS attach / rejected / IMSI invalid / PS services not allowed

12.2.1.3.1 Definition

12.2.1.3.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause '~~PS services not allowed~~GPRS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a PS attach procedure from the User Equipment with the cause '~~PS services not allowed~~GPRS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause '~~PS services not allowed~~GPRS services not allowed' (no valid PS-subscription for the IMSI).

12.2.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value '~~PS services not allowed~~GPRS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 17.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
5		<-	ATTACH REJECT	GMM cause = '~~PS services not allowed~~GPRS services not allowed'
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
7a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
8	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
9	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
10	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
11a		<-	AUTHENTICATION AND CIPHERING REQUEST	
11b		->	AUTHENTICATION AND CIPHERING RESPONSE	
11c		SS		The SS starts integrity protection.
12		<-	ATTACH ACCEPT	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
13		->	ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
15a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

16			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
17	UE		The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 15.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.2.1.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step8, UE shall:

- not perform a PS attach procedure.

At step11, after the UE is switched on or a USIM is replaced, UE shall:

- perform the PS attach procedure.

12.2.1.4 PS attach / rejected / PLMN not allowed

12.2.1.4.1 Definition

12.2.1.4.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:

   1.1 not perform PS attach when switched on in the same routing area or location area (except for the HPLMN).

   1.2 not perform PS attach when in the same PLMN and when that PLMN is not selected manually.

   1.3 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.4 store the PLMN in the 'forbidden PLMN' list.

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall perform PS attach when a new PLMN is entered.

3) If the network rejects a PS attach procedure from the User Equipment with the cause 'PLMN not allowed' and if after that the PLMN from which this rejection was received, is manually selected, the User Equipment shall perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.4.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'PLMN not allowed'.

12.2.1.4.4 Method of test

12.2.1.4.4.1 Test procedure 1

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell B in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell C in MCC1/MNC2/LAC2/RAC1 (RAI-9) and cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All four cells are operating in network operation mode II (in case of UE operation mode A). The PLMN of the four cells should NOT be that of the UE Home PLMN.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-8. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same routing area or location area and performs PS attach only when a new PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-8
5		<-	ATTACH REJECT	GMM cause = 'PLMN not allowed'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
		SS		The following messages are sent and shall be received on cell B.
7	UE			The UE is switched off.
8		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
9	UE			The UE is powered up or switched on.
10	UE			Cell B is preferred by the UE.
11	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
		SS		The following messages are sent and shall be received on cell C.
12		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
13	UE			Cell C is preferred by the UE.
14	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
		SS		The following messages are sent and shall be received on cell D.
15		SS		Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
16	UE			Cell D is preferred by the UE.
17	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
18	UE			The UE initiates an attach automatically, by MMI or by AT command.
19		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
19a		<-	AUTHENTICATION AND CIPHERING REQUEST	
19b		->	AUTHENTICATION AND CIPHERING RESPONSE	
19c		SS		The SS starts integrity protection.

20	<-	ATTACH ACCEPT	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
21	->	ATTACH COMPLETE	
22	UE		The UE is switched off or power is removed (see ICS).
23	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
24	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

12.2.1.4.4.2 Test procedure 2

Initial condition

System Simurator:

One cell operating in network operation mode II: MCC2/MNC1/LAC1/RAC1 (RAI-2). The PLMN of the cell should NOT be that of the Mobile Station Home PLMN.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'PLMN not allowed'. The subscribers access rights is changed to allow PS attach. Then the PLMN from which this rejection was received is manually selected and the SS check that a PS attach is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C or A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
3	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
4	<-		ATTACH REJECT	GMM cause = 'PLMN not allowed'
5	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
6	UE			The current PLMN is selected manually.
7			Void	
8	UE			The UE initiates an attach automatically, by MMI or by AT command.
9	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
9a	<-		AUTHENTICATION AND CIPHERING REQUEST	
9b	->		AUTHENTICATION AND CIPHERING RESPONSE	
9c	SS			The SS starts integrity protection.
10	<-		ATTACH ACCEPT	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
11	->		ATTACH COMPLETE	
12	UE			The UE is switched off or power is removed (see ICS).
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
14	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.1.4.5 Test requirements

Test requirements for test procedure 1

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, UE shall:

- not perform PS attach procedure.

UE shall perform the following actions depending on the PLMN or the routing area or the location area

Case 1) UE is in the same routing area or location area when the power is switched on,

At step11, UE shall:

- not perform PS attach procedure.

Case2) UE is in the same PLMN, and this PLMN is not selected manually

At step14, UE shall:

- not perform PS attach procedure.

Case3) UE is in a new PLMN.

At step19, UE shall:

- perform the PS attach procedure.

Test requirements for test procedure 2

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, UE shall:

- not perform PS attach procedure.

At step9, when the UE is in the new PLMN, and this PLMN is selected manually, UE shall

- perform the PS attach procedure.

12.2.1.5a PS attach / rejected / roaming not allowed in this location area

12.2.1.5a.1 Definition

12.2.1.5a.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment shall:

   1.1 not perform PS attach when in the same location area.

   1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for roaming' list.

   1.4 perform PS attach when a new location area is entered.

   1.5 Periodically search for its HPLMN.

2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

3) The UE shall be capable of storing at least 10 entries in the list of 'Forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5a.3 Test purpose

Test purpose 1

To test that on receipt of a rejection using the 'roaming not allowed in this location area' cause code, the UE ceases trying to attach on that location area. Successful PS attach procedure is possible in other location areas.

Test purpose 2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

Test purpose 3

To test that at least 6 entries can be held in the list of 'forbidden location areas for roaming' (the requirement in 3GPP TS 24.008 is to store at least 10 entries. This is not fully tested by the third procedure).

Test purpose 4

To test that if a cell of the Home PLMN is available then the UE returns to it in preference to any other available cell.

12.2.1.5a.4 Method of test

12.2.1.5a.4.1 Test procedure 1

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in

MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN) and cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN).

All three cells are operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. A new attempt for a PS attach is not possible. Successful PS attach / detach procedures are performed in another location area. A new attempt for a PS attach is performed in the 1st location area. This attempt shall not succeed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 19.
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
5	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
10	UE			The UE initiates an attach automatically, by MMI or by AT command.
10a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
11	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c		SS		The SS starts integrity protection.
12	<-		ATTACH ACCEPT	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-6
13	->		ATTACH COMPLETE	
13a		SS		The SS releases the RRC connection.
14	UE			The UE initiates a PS detach (without power off) by MMI or by AT command .
14a		SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
15	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach'
16	<-		DETACH ACCEPT	
16a		SS		The SS releases the RRC connection.

17 18 19	SS UE UE		The following messages are sent and shall be received on cell C. Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note) Cell C is preferred by the UE. No ATTACH REQUEST sent to SS (SS waits 30 seconds). The UE is switched off or power is removed (see ICS)
20 21	UE SS		UE is switched off. Set the cell type of cell C to the "Non-Suitable cell". (see note)
22	UE		The UE is set in UE operation mode A if supported (see ICS) and the test is repeated from step 2 to step 20.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

12.2.1.5a.4.2 Test procedure 2

Initial condition

System Simulator:

One cell in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN) operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach updating with the cause value 'Roaming not allowed in this location area'. The UE is switched off for 10 s and switched on again. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

If USIM removal is possible without switching off: The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. The USIM is removed and inserted in the UE. The SS check that a PS attach is possible on the cell on which the PS attach had been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
2b	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
3	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
4	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
5	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
5a	SS			The SS releases the RRC connection.
6	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
7	UE			The UE is powered up or switched on and initiates an attach (see ICS).
8				
8a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
9	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
9a	<-		AUTHENTICATION AND CIPHERING REQUEST	
9b	->		AUTHENTICATION AND CIPHERING RESPONSE	
9c	SS			The SS starts integrity protection.
10	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
11	->		ATTACH COMPLETE	
11a	SS			The SS releases the RRC connection.
12	UE			The UE is switched off or power is removed (see ICS).
12a	SS			SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
12b			Void	
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
14	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

12.2.1.5a.4.3 Test procedure 3

Initial condition

System Simulator:

Six cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-3, Not HPLMN), cell C in MCC2/MNC1/LAC3/RAC1 (Not HPLMN), cell D in MCC2/MNC1/LAC4/RAC1 (Not HPLMN), cell E in MCC2/MNC1/LAC5/RAC1 (Not HPLMN), cell F in MCC2/MNC1/LAC6/RAC1 (Not HPLMN).
All six cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. This is done for 6 different location areas. Then the SS checks that the UE does not attempt to perform an attach procedure on the non-allowed location areas.

Different types of UE may use different methods to periodically clear the list of forbidden areas (e.g. every day at 12am) for roaming. If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Non-Suitable cell". Set the cell type of cell F to the "Non-Suitable cell". (see note)
2	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
5		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9	UE		Registration on CS	See TS 34.108 This is applied only in case of UE operation mode A. Parameter mobile identity is IMSI.
10	UE			The UE initiates an attach automatically, by MMI or by AT command.
10a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
11		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
12		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
13	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell C.
14		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
15	UE			Cell C is preferred by the UE.

Step	Direction		Message	Comments
	UE	SS		
16	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
17a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
18	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
19	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
20	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
				The following messages are sent and shall be received on cell D.
21a	SS			The SS releases the RRC connection.
21	SS			Set the cell type of cell C to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
22	UE			Cell D is preferred by the UE.
23	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
24	UE			The UE initiates an attach automatically, by MMI or by AT command.
24a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
25	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
26	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
27	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
27a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
				The following messages are sent and shall be received on cell E.
28	SS			Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Serving cell". (see note)
29	UE			Cell E is preferred by the UE.
30	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
31	UE			The UE initiates an attach automatically, by MMI or by AT command.
31a	SS			SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
32	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
33	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
34	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
34a	SS			The SS releases the RRC connection.
				The following messages are sent and shall be received on cell F.

Step	Direction		Message	Comments
	UE	SS		
35		SS		Set the cell type of cell E to the "Non-Suitable cell". Set the cell type of cell F to the "Serving cell". (see note)
36	UE			Cell F is preferred by the UE.
37	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
38	UE			The UE initiates an attach automatically, by MMI or by AT command.
38a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
39	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
40	<-		ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
41	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
41a		SS		The SS releases the RRC connection.
42		SS		The following messages are sent and shall be received on cell E. Set the cell type of cell E to the "Serving cell". Set the cell type of cell F to the "Non-Suitable cell". (see note)
43		SS		Cell E is preferred by the UE.
44	UE			The UE initiates an attach automatically, by MMI or by AT command.
45	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
46		SS		The following messages are sent and shall be received on cell C. Set the cell type of cell C to the "Serving cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
47		SS		Cell C is preferred by the UE.
48	UE			The UE initiates an attach automatically, by MMI or by AT command.
49	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
50		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
51		SS		Cell A will be preferred by the UE.
52	UE			The UE initiates an attach automatically, by MMI or by AT command.
53	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

12.2.1.5a.4.4 Test procedure4

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (not HPLMN, RAI-2) and cell B in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1).

Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-2.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming not allowed in this location area'. A second cell belonging to the HPLMN is activated. It is checked that the UE returns to its HPLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			If UE operation mode C is supported, the UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, the UE is set in UE operation mode A.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
3b		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-2
5		<-	ATTACH REJECT	GMM cause = 'Roaming not allowed in this location area'
6	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
6a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
9	UE			The UE initiates an attach automatically, by MMI or by AT command.
9a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
10		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
10a		<-	AUTHENTICATION AND CIPHERING REQUEST	
10b		->	AUTHENTICATION AND CIPHERING RESPONSE	
10c		SS		The SS starts integrity protection.
11		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
12		->	ATTACH COMPLETE	
12a		->		The SS releases the RRC connection.
13	UE			The UE is switched off or power is removed (see ICS).
13a		SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
13b			Void	
14		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'

15	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.1.5a.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not perform the PS attach procedure.

At step11, when the new location area is entered, UE shall:

- perform the PS attach procedure

At step19, when the rejected location area is entered, UE shall

- not perform PS attach procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step5, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not perform PS attach procedure.

At step9, when the UE is switched off or USIM is replaced, UE shall:

- perform the PS attach procedure.

Test requirements for Test procedure3

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, 13, 20, 27, 34 and 41, after the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not perform PS attach procedure.

At step11, 18, 25, 32 and 39 , UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step45, 49 and 53, UE shall:

- not perform PS attach procedure.

Test requirements for Test procedure4

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not perform PS attach procedure.

At step10, when a new location area is entered, UE shall:

- perform the PS attach procedure.

12.2.1.5b PS attach / rejected / No Suitable Cells In Location Area

12.2.1.5b.1 Definition

12.2.1.5b.2 Conformance requirement

(1) If the network rejects a PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

1.1 not perform PS attach when in the same location area.

1.2 delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

1.3 store the LA in the 'forbidden location areas for roaming' list.

1.4 not delete the list of "equivalent PLMNs".

1.5 perform PS attach when a new location area is entered.

Reference

3GPP TS 24.008 clauses 4.7.3.1.

12.2.1.5b.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'No Suitable Cells In Location Area'.

12.2.1.5b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6)

All three cells are operating in network operation mode II.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the equivalent PLMN and shall perform PS attach procedure in that cell.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-suitable cell". Set the cell type of cell C to the "Non-suitable cell". (see note)
3			Void	
3a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6	<-		DETACH REQUEST	Detach type = re-attach required
7	->		DETACH ACCEPT	
8		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
9			Void	
10	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
11	<-		ATTACH REJECT	GMM cause = 'No Suitable Cells In Location Area'
12		SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell C.
13	UE		Registration on CS	See TS 34.108
14	UE			The UE initiates an attach automatically, by MMI or by AT command.
14a				SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
15	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
16	<-		AUTHENTICATION AND CIPHERING REQUEST	
17	->		AUTHENTICATION AND CIPHERING RESPONSE	
18		SS		The SS starts integrity protection.

19	<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
20	->	ATTACH COMPLETE	
20a	SS		The SS releases the RRC connection.
21	UE		The UE is switched off or power is removed (see ICS).
21a	SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
22	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
23	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.1.5b.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step15, when the UE enters a suitable cell in a different location area on the equivalent PLMN, UE shall:

- perform the PS attach procedure.

12.2.1.5c PS attach / rejected / Location area not allowed

12.2.1.5c.1 Definition

12.2.1.5c.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Location area not allowed' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 reset the attach attempt counter.

   1.4 store the LAI in the list of "forbidden location areas for regional provision of service".

   1.1 perform a cell selection.

   1.2 not delete the list of "equivalent PLMNs".

2) If the network rejects a PS attach procedure from the User Equipment with the cause 'Location area not allowed' and if the User Equipment is IMSI attached via MM procedures the User Equipment shall:

   2.1 set the update status to U3 ROAMING NOT ALLOWED.

2.2 delete any TMSI, LAI and ciphering key sequence number.

2.3 reset the location update attempt counter.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5c.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'Location area not allowed'.

12.2.1.5c.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode II (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Location area not allowed'. The SS checks that the UE does not perform MM IMSI attach while in the same location area and performs PS attach when a new equivalent PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			If UE operation mode A is supported, If UE operation mode C is supported, the UE is set in UE operation mode A (see ICS). If UE operation mode A is not supported, the UE is set in UE operation mode C.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". Set the cell type of cell C to the " Non-suitable cell " (see note)
3	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
3a		SS		SS checks that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìRegistrationî.
4		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1
4a		->	AUTHENTICATION AND CIPHERING REQUEST	
4b		<-	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection
5		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6		<-	DETACH REQUEST	Detach type = re-attach required
7		->	DETACH ACCEPT	
8		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell ". Set the cell type of cell C to the " Suitable neighbour cell " (see note) The SS configures power level of each Cell as follows. Cell A > Cell B > Cell C
9			Void	
10		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1
11		<-	ATTACH REJECT	GMM cause = 'Location area not allowed'
11a		SS		The SS releases the RRC connection.
12	UE			The UE performs cell selection.
				The following messages are sent and shall be received on cell C.
12a	UE		Registration on CS	See TS 34.108. This is applied only for UE in UE operation mode A.
12b	UE			SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìRegistrationî
13		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
14		<-	AUTHENTICATION AND CIPHERING REQUEST	

15	->	AUTHENTICATION AND CIPHERING RESPONSE	
16	SS		The SS starts integrity protection.
17	<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
18	->	ATTACH COMPLETE	
19	UE		No MM IMSI attach request sent to SS (SS waits 30 seconds).
19a	SS		The SS releases the RRC connection.
20	UE		The UE is switched off or power is removed (see ICS).
20a	SS		SS checks that the IE ìEstablishment causeî in any received RRC CONNECTION REQUEST message is set to ìDetachî.
20b	UE	Detach on CS	This is applied only for UE in UE operation mode A.
21	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.1.5c.5 Test requirements

At step4 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step12, UE shall:

- perform cell selection.

At step13, UE shall:

- perform PS attach procedure with Mobile identity = IMSI.

At step19, UE shall:

- not perform MM IMSI attach

12.2.1.5d PS attach / rejected / PS services not allowed in this PLMN

12.2.1.5d.1 Definition

12.2.1.5d.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'GPRS services not allowed in this PLMN' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

1.3 store the PLMN identity in the "forbidden PLMNs for PS service" list.

1.4 perform a PLMN selection instead of a cell selection, if the UE is in UE operation mode C.

2) If the UE is in UE operation mode A or B and the network is in network operation mode II the User Equipment shall:

2.1 be still IMSI attached for CS services in the network..

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.5d.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~'.

12.2.1.5d.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
All three cells are operating in network operation mode II (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~'. The SS checks that the UE performs PS attach with attach type = GPRS attach~~PS attach~~ when a new equivalent PLMN is entered.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". Set the cell type of cell C to the " Non-suitable cell " (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Mobile identity = TMSI-1
5		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1
5a		<-	AUTHENTICATION AND CIPHERING REQUEST	
5b		->	AUTHENTICATION AND CIPHERING RESPONSE	
5c		SS		The SS starts integrity protection.
6		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
7		<-	DETACH REQUEST	Detach type = re-attach required
8		->	DETACH ACCEPT	
9		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell ". Set the cell type of cell C to the " Suitable neighbour cell " (see note)
10		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1
11		<-	ATTACH REJECT	GMM cause = 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~'
12	UE			The UE performs PLMN selection. The following messages are sent and shall be received on cell C.
13		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
14		<-	AUTHENTICATION AND CIPHERING REQUEST	
15		->	AUTHENTICATION AND CIPHERING RESPONSE	
16		SS		The SS starts integrity protection.
17		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-7 Equivalent PLMNs = MCC1,MNC1
18		->	ATTACH COMPLETE	
19		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
20			Void	
21		->	RRC CONNECTION REQUEST	

22	<-	RRC CONNECTION SETUP	
23	->	RRC CONNECTION SETUP COMPLETE	
24	->	PAGING RESPONSE	
25	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
26	->	RRC CONNECTION RELEASE COMPLETE	
27	UE		The UE is switched off or power is removed (see ICS).
28	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
29	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.1.5d.5 Test requirements

At step5 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step12, UE shall:

- perform PLMN selection.

At step13, UE shall:

- perform PS attach procedure with Mobile identity = IMSI to the equivalent cell.

At step21, UE shall:

- respond the Paging for CS domain service.

12.2.1.6 PS attach / abnormal cases / access barred due to access class control

12.2.1.6.1 Definition

12.2.1.6.2 Conformance requirement

1) The UE shall not perform PS attach procedure, but stays in the current serving cell and applies normal cell reselection process.

2) The User Equipment shall perform the PS attach procedure when:

   2.1 Access is granted.

   2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.6.3 Test purpose

Test purpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test purpose2

To test the behaviour of the UE in case of access class control (Cell is changed).

12.2.1.6.4 Method of test

12.2.1.6.4.1 Test procedure1

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred.

System Simulator:

One cell operating in network operation mode II.
Access class x barred.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

The SS indicates that access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The USIM is programmed with access class x.
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 12.
3	UE			The UE is powered up or switched on and attempts to initiate an attach (see ICS).
4	UE			No ATTACH REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
5	SS			The access class x is not barred anymore.
6	UE			The UE initiates a PS attach either automatically or manually (see ICS).
7		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
7a		<-	AUTHENTICATION AND CIPHERING REQUEST	
7b		->	AUTHENTICATION AND CIPHERING RESPONSE	
7c	SS			The SS starts integrity protection.
8		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
9		->	ATTACH COMPLETE	
10	UE			The UE is switched off or power is removed (see ICS).
11		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
11a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
12	SS			The SS is set in network operation mode II.
13	UE			The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 11.

12.2.1.6.4.2 Test procedure2

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell A.

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x barred, cell B in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred.
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid P-TMSI-2 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS indicates access class x barred. A PS attach procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A PS attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The USIM is programmed with access class x.
		SS		The following messages are sent and shall be received on cell A.
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is set in UE operation mode C (see ICS).
4	UE			The UE is powered up or switched on and attempts to initiate an attach (see ICS).
5	UE			No ATTACH REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			The UE initiates an attach either automatically or manually (see ICS).
8	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-2 Routing area identity = RAI-1
8a	<-		AUTHENTICATION AND CIPHERING REQUEST	
8b	->		AUTHENTICATION AND CIPHERING RESPONSE	
8c		SS		The SS starts integrity protection.
9	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
10	->		ATTACH COMPLETE	
11	UE			The UE is switched off or power is removed (see ICS).
12	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
13		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.1.6.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE access class x is barred, UE shall:

- not perform a PS attach procedure.

At step7, when the UE access class x is granted, UE shall:

initiate the PS attach procedure.

Test requirements for Test procedure2

At step5, when the UE access class x is barred, UE shall:

- not perform a PS attach procedure.

At step8, when the serving cell is changed, UE shall:

- initiate the PS attach procedure.

12.2.1.7 PS attach / abnormal cases / change of routing area

12.2.1.7.1 Definition

12.2.1.7.2 Conformance requirement

If a cell change into a new routing area occurs before an ATTACH ACCEPT or ATTACH REJECT message has been received, the GPRS attach procedure shall be aborted and re-initiated immediately.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.7.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.7.4 Method of test

Initial condition

System Simulator:

One cell with MCC1/MNC1/LAC1/RAC1 (RAI-1)
The cell is operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No (only if mode C not supported)

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The ATTACH ACCEPT message is delayed from the SS. The UE receive a new routing area code. The UE shall re-initiate a PS attach procedure in the new routing area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
5		SS		No response to the ATTACH REQUEST message is given by the SS.
6			Void	
6a		<-	UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code. Note: SS transmits the updated system information with the new RAI information in SIB1
6b		->	UTRAN MOBILITY INFORMATION CONFIRM	
7	UE			The UE automatically re-initiates the attach.
8		->	ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
8a		<-	AUTHENTICATION AND CIPHERING REQUEST	
8b		->	AUTHENTICATION AND CIPHERING RESPONSE	
8c		SS		The SS starts integrity protection.
9		<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-4
10	UE			The UE is switched off or power is removed (see ICS).
11		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
11a				The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

UTRAN MOBILITY INFORMATION (step 6a)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	Infinity
- ATT	0
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	1 (Network Mode of Operation II)
- CN domain specific DRX cycle length coefficient	7

12.2.1.7.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected sequence.

At step8, as the UE has received a new RAI in the UTRAN MOBILITY INFORMATION message before the ATTACH ACCEPT message or the ATTACH REJECT message is received by the UE, the UE shall:

- abort the PS attach procedure and re-initiate the PS attach procedure immediately with new information elements.

12.2.1.8 PS attach / abnormal cases / power off

12.2.1.8.1 Definition

12.2.1.8.2 Conformance requirement

When power is switched off before ATTACH ACCEPT message is received by the UE, the UE shall abort the PS attach procedure and perform a PS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.

12.2.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is switched off after initiating an attach procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 7.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4	SS			No response to the ATTACH REQUEST message is given by the SS.
5	UE			The UE is powered off and initiates a PS detach (with power off) by
6	->		DETACH REQUEST	Detach type = 'power switched off, GPRS ~~PS~~ detach'
7	UE			The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 6.

Specific message contents

None.

12.2.1.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when power is switched off before ATTACH ACCEPT message is received, UE shall:

- abort the PS attach procedure and perform the PS detach procedure.

12.2.1.9 PS attach / abnormal cases / PS detach procedure collision

12.2.1.9.1 Definition

12.2.1.9.2 Conformance requirement

1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message, the UE shall terminate the PS attach procedure and continue with the PS detach procedure.

2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message, the UE shall ignore the PS detach procedure and continue with the PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (any cause except re-attach). The UE shall terminate the PS attach procedure and continue with the PS detach procedure**.**

The UE initiates a PS attach procedure. The SS does not answer the PS attach procedure, but initiates a PS detach procedure (cause re-attach). The UE shall ignore the PS detach procedure and continue with the PS attach.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
5	<-		DETACH REQUEST	Detach type = 're-attach not required'
6	->		DETACH ACCEPT	
7	UE			The UE initiates the attach procedure by MMI or AT command.
8	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
9	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 're-attach required'
11	UE			The UE ignores the DETACH REQUEST message and continue with the attach procedure.
12	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
16	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.1.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Detach type in the DETACH REQUEST message.

Case1) Detach type = 're-attach not required' GMM cause is not re-attach

At step6, when the DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message, UE shall:

- terminate the PS attach procedure and continue with the PS detach procedure.

Case2) Detach type = 're-attach required'

At step11, when the DETACH REQUEST message is received by the UE while waiting for an ATTACH ACCEPT message, UE shall:

- ignore the PS detach procedure and continue with the PS attach procedure.

12.2.1.10 PS attach / abnormal cases / Failure due to non-integrity protection

12.2.1.10.1 Definition

12.2.1.10.2 Conformance requirement

Except the messages listed below, no layer 3 signalling messages shall be processed by the receiving MM and GMM entities or forwarded to the CM entities, unless the security mode control procedure is activated for that domain.

- GMM messages:
  - AUTHENTICATION & CIPHERING REQUEST
  - AUTHENTICATION & CIPHERING REJECT
  - IDENTITY REQUEST
  - ATTACH REJECT
  - ROUTING AREA UPDATE ACCEPT (at periodic routing area update with no change of routing area or temporary identity)
  - ROUTING AREA UPDATE REJECT
  - SERVICE REJECT
  - DETACH ACCEPT (for non power-off)

Reference(s):

3GPP TS 24.008 clause 4.1.1.1.1

12.2.1.10.3 Test purpose

To verify that the UE ignores NAS signalling messages when the security mode procedure is not activated.

12.2.1.10.4 Method of test

Initial Conditions

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid IMSI.

Related ICS Statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
Switch off on button	Yes/No

Test procedure

The attach procedure is initiated. Upon reception of ATTACH REQUEST message from the UE, the SS responds with an ATTACH ACCEPT message without the integrity protection. The UE shall ignore this message and re-transmit ATTACH REQUEST message at expiry of timer T3310.

This time the SS starts the authentication procedure and initiates the integrity protection. After receiving ATTACH ACCEPT message, the UE shall respond to ATTACH COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach procedure (see ICS).
3	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN
6	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
7	SS			The SS does not initiate the security mode procedure.
8	<-		ATTACH ACCEPT	
9	UE			The UE ignores ATTACH ACCEPT message.
10	SS			The SS waits 15 sec (T3310).
11	->		ATTACH REQUEST	The UE re-transmits the message. The SS verifies that the period of time between the ATTACH REQUEST messages corresponds to the value of T3310. Attach type = 'GPRS attach~~PS attach~~' Mobile identity = IMSI
12	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN
13	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
14	SS			The SS starts integrity protection.
15	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI
16	->		ATTACH COMPLETE	
17	UE			The UE is switched off or power is removed (see ICS).
18	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
19	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific Message Contents

None.

12.2.1.10.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall;

- ignore the first ATTACH ACCEPT message.

At step11, UE shall;

- re-transmit ATTACH REQUEST message after expiry of timer T3310.

At step16, UE shall;

- respond to ATTACH COMPLETE message after the UE receives the second ATTACH ACCEPT message.

12.2.2 Combined PS attach

12.2.2.1 Combined PS attach / PS and non-PS attach accepted

12.2.2.1.1 Definition

12.2.2.1.2 Conformance requirement

1) If the network accepts the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI, the UE shall acknowledge the P-TMSI and continue communication with the P-TMSI.

2) If the network accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

3) If the network accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI, the UE shall continue communication with the previously used P-TMSI.

4) If the network accepts the combined PS attach procedure and determines that IMSI shall be used in CS operations, the UE shall continue communication with the IMSI for CS operations.

5) If the network accepts the combined PS attach procedure and determines that a TMSI shall be used in CS operations, the UE shall continue communication with the TMSI for CS operations.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the PS attach procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is allocated;

2) P-TMSI / P-TMSI signature is reallocated;

3) Old P-TMSI / P-TMSI signature is not changed;

4) Mobile terminating CS call is allowed with IMSI;

5) Mobile terminating CS call is not allowed with TMSI.

12.2.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I. ATT flag is set to 0.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. The UE acknowledge the P-TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the IMSI is used.

2) The UE is CS paged in order to verify that the IMSI is used for CS calls.

3) The UE is PS paged in order to verify that the new P-TMSI is used for PS services.

4) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS allocates a new P-TMSI and returns ATTACH ACCEPT message with the new P-TMSI and a new TMSI. The UE acknowledge the P-TMSI and the TMSI by sending ATTACH COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the new TMSI is used. The UE is CS paged in order to verify that the new TMSI is used for CS services.

5) The UE is PS paged in order to verify that the new P-TMSI is used for PS services. The UE will not answer signalling addressed to the old P-TMSI.

6) The UE sends an ATTACH REQUEST message with identity P-TMSI. The SS accepts the P-TMSI and returns ATTACH ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the previously used P-TMSI.

7) The UE is PS paged in order to verify that the previously used P-TMSI is used for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity =IMSI Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.
6	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call"
7	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
8			Void	
9			Void	
10	->		PAGING RESPONSE	Mobile identity = IMSI
11	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services Paging cause = "Terminating interactive call"
13a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
13b			Void	
13c			Void	
14	->		SERVICE REQUEST	service type = "paging response"
14aa	SS			The SS starts integrity protection.
14a	SS			The SS releases the RRC connection.
14b			Void	
15	UE			The UE is switched off or power is removed (see ICS).
15a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS -~~/ IMSI detach'

Step	Direction		Message	Comments
	UE	SS		
16a		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
17	UE			The UE is powered up or switched on and initiates an attach (see ICS).
17a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 TMSI status = no valid TMSI available Routing area identity = RAI-1
18a	<-		AUTHENTICATION AND CIPHERING REQUEST	
18b	->		AUTHENTICATION AND CIPHERING RESPONSE	
18c		SS		The SS starts integrity protection.
19	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
20	->		ATTACH COMPLETE	
21			Void	
21b			Void	
21c		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
22	<-		PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call"
23		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
24			Void	
25			Void	
26	->		PAGING RESPONSE	Mobile identity = TMSI-1
27		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
28			Void	
29	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services Paging cause = "Terminating interactive call"
29a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
29b			Void	
29c			Void	
30	->		SERVICE REQUEST	service type = "paging response"
30aa		SS		The SS starts integrity protection.
30a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
30b			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services Paging cause = "Terminating interactive call"
32	UE			No response from the UE to the request. This is checked for 10 seconds.
33	UE			The UE is switched off or power is removed (see ICS).

Step	Direction		Message	Comments
	UE	SS		
33a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
34		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
34a		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
35	UE			The UE is powered up or switched on and initiates an attach (see ICS).
35a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
36		->	ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-2 Routing area identity = RAI-1 TMSI status = valid TMSI available or IE not present
36a		<-	AUTHENTICATION AND CIPHERING REQUEST	
36b		->	AUTHENTICATION AND CIPHERING RESPONSE	
36c		SS		The SS starts integrity protection.
37		<-	ATTACH ACCEPT	No new mobile identity assigned. TMSI and P-TMSI not included. Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' P-TMSI-3 signature Routing area identity = RAI-1
37a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
38		<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services Paging cause = "Terminating interactive call"
38a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
38b			Void	
38c			Void	
39		->	SERVICE REQUEST	service type = "paging response"
39aa		SS		The SS starts integrity protection.
39a		SS		The SS releases the RRC connection.
39b			Void	
40	UE			The UE is switched off or power is removed (see ICS).
40a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
41		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
42		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

Specific message contents

None.

12.2.2.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

Case 1) SS accept the combined PS attach procedure (signalled by an IMSI) and allocates a P-TMSI.

At step5, UE shall

- send the ATTACH COMPLETE message.

At step10, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step14, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

Case 2) SS accepts the combined PS attach procedure (signalled by P-TMSI) and reallocates a new P-TMSI and TMSI.

At step20, UE shall:

- send the ATTACH COMPLETE message.

At step26, when the UE receives the paging message for CS domain with Mobile identity = TMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step30, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

Case 3) SS accepts the combined PS attach procedure (signalled by a P-TMSI) from the UE without reallocation of the previously used P-TMSI.

At step39, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.2 Combined PS attach / PS only attach accepted

12.2.2.2.1 Definition

12.2.2.2.2 Conformance requirement

1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.

2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.2.3 Test purpose

Test purpose1

To test the behaviour of the UE if the network accepts the PS attach procedure with indication PS only, GMM cause 'IMSI unknown in HLR'.

Test purpose2

To test the behaviour of the UE which does not support an automatic MM IMSI attach if the network accepts the PS attach procedure with indication PS only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

Test purpose 3

To test the behaviour of the UE which supports an automatic MM IMSI attach if the network accepts the PS attach procedure with indication PS only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.2.2.2.4 Method of test

12.2.2.2.4.1 Test procedure1

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message with identity IMSI. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature GMM cause = 'IMSI unknown in HLR' Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
7	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
8	UE			The UE is switched off or power is removed (see ICS).
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
10	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

12.2.2.2.4.2 Test procedure2

Initial condition

System Simulator:

One cell operating in network operation mode I. T3212 and T3302 is set to 6 minutes.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS returns

a ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The ROUTING AREA UPDATE procedure is repeated four times. An UE operation mode A UE may then perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is indicated (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
5	->		ATTACH COMPLETE	
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-2 signature Routing area identity = RAI-1
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-3 signature Routing area identity = RAI-1
11	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-4 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-4 signature Routing area identity = RAI-1
13	SS			The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.

Step	Direction		Message	Comments
	UE	SS		
14		<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-5 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
16		->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-5 signature Routing area identity = RAI-1
17		<-	ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-6 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
18-20			(void)	
21	UE			The UE is switched off or power is removed (see ICS).
22		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'. Stop the sequence.
23	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

12.2.2.2.4.3 Test procedure 3

Initial condition

System Simulator:

One cell operating in network operation mode I. T3212 and T3302 is set to 6 minutes.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE sends an ATTACH REQUEST message. The SS allocates a P-TMSI and returns ATTACH ACCEPT message with a P-TMSI. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS returns a ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. The ROUTING AREA UPDATE procedure is repeated four times. An UE operation mode A UE may then perform an MM IMSI attach procedure (according to the

ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Automatic MM IMSI attach procedure is indicated (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = '~~PS only attached~~GPRS only attached' P-TMSI-2 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
5	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-2 signature Routing area identity = RAI-1
6	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-3 signature Routing area identity = RAI-1
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-4 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-4 signature Routing area identity = RAI-1
10	SS			The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.
11	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-5 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)

Step	Direction		Message	Comments
	UE	SS		
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA / LA updating with IMSI attach' P-TMSI-5 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
13	SS			The SS verifies that the time between the previous routing area update accept and routing area update request is T3311.
14	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-6 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
15	UE			An automatic MM IMSI attach procedure is initiated.
16	UE		Registration on CS	Optional step. See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI Steps 4917 - 5523 are only performed if the UE has performed the Registration Procedure in step 4116.
17	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
18	->		RRC CONNECTION REQUEST	
19	<-		RRC CONNECTION SETUP	
20	->		RRC CONNECTION SETUP COMPLETE	
21	->		PAGING RESPONSE	Mobile identity = TMSI-1
22	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
23	->		RRC CONNECTION RELEASE COMPLETE	
24	UE			The UE is switched off or power is removed (see ICS).
25	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
26	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.2.2.5 Test requirements

Test requirements for Test porpose1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

Test requirements for Test porpose2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, 10, 12 and 16, when the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

Test requirements for Test porpose3

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with information elements specified in the above Expected Sequence.

At step5, 7, 9 and 11, when the routing area updating attempt counter is less than 5 and the stored RAI is equal to the RAI of the current serving cell, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

At step16, UE shall:

- perform MM location updating procedure.

At step21, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.2.2.3 Combined PS attach / PS attach while IMSI attach

12.2.2.3.1 Definition

12.2.2.3.2 Conformance requirement

If the PS UE is already attached for non-PS services by the MM specific attach procedure, but wants to perform an attach for PS services, the combined PS attach procedure is performed.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.3.3 Test purpose

To test the behaviour of the UE if PS attach performed while IMSI attached.

12.2.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I. ATT flag is set.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE is forced to register for CS services but not to PS services. The SS verifies that the UE does not respond to paging messages for PS domain. Then the UE is triggered to perform the PS attach procedure and the SS verifies that it responds to PS paging messages.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS) and configured not to perform an automatic PS attach at switch on.
2	UE			The UE is powered up or switched on. No PS attach is performed (see ICS).
3			Registration on CS	See TS 34.108 Location updating type = IMSI attach. The SS allocates TMSI-1
4	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
5	UE			No response from the UE to the request. This is checked for 10 seconds.
6	UE			The UE is triggered to perform a PS attach.
7	->		ATTACH REQUEST	Attach type = ~~'PS~~ 'GPRS attach while IMSI attached' or 'Combined GPRS~~PS~~ /-IMSI attach~~ed~~' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	
7b	->		AUTHENTICATION AND CIPHERING RESPONSE	
7c	SS			The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' No new mobile identity assigned. TMSI and P-TMSI not included P-TMSI-2 signature Routing area identity = RAI-1
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	->		RRC CONNECTION REQUEST	
11	<-		RRC CONNECTION SETUP	
12	->		RRC CONNECTION SETUP COMPLETE	
13	->		SERVICE REQUEST	service type = "paging response"
14	<-		RRC CONNECTION RELEASE	
15	->		RRC CONNECTION RELEASE COMPLETE	
16	UE			The UE is switched off or power is removed (see ICS).
17	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
18	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.2.3.5 Test requirements

UE is already attached for non-PS service with the MM specific attach procedure.

At step5, UE shall:

- not respond to the paging message for PS domain.

At step7, when the UE is requested to attach for PS services, UE shall:

- perform the combined PS attach procedure.

At step13, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.4 Combined PS attach / rejected / IMSI invalid / illegal ME

12.2.2.4.1 Definition

12.2.2.4.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause 'Illegal ME'.

12.2.2.4.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1(RAI-2).
All three cells are operating in network operation mode I.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No

Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN. CS services are not possible as the USIM is blocked for CS services. PS services are not possible as the USIM is blocked for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -IMSI attach' or 'GPRS~~PS~~ attach while IMSI attached' Mobile identity = P-TMSI-1 Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted
5		<-	ATTACH REJECT	GMM cause 'Illegal ME'.
6	UE		PAGING TYPE1	Mobile identity = TMSI-1Paging order is for CS services.
7	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
8		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services
9	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
10		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
12		SS		The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
13	UE			Cell B is preferred by the UE.
14	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
15		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17		SS		The following messages are sent and shall be received on cell C. Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
18	UE			Cell C is preferred by the UE.
19	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
20		<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services
21	UE			No response from the UE to the request. This is checked for 10 seconds.
22	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
23	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).

Step	Direction		Message	Comments
	UE	SS		
24	UE			Step 25 is only performed for non-auto attach UE. A location updating procedure is initiated.
25	UE		Registration on CS	See TS34.108 Parameter Mobile identity is IMSI.
26	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
27	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' or 'GPRS~~PS~~ attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
27a	<-		AUTHENTICATION AND CIPHERING REQUEST	
27b	->		AUTHENTICATION AND CIPHERING RESPONSE	
27c	SS			The SS starts integrity protection.
28	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-2
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-2
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
37	UE			The UE is switched off or power is removed (see ICS).
38	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
39	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.2.4.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, 9 and 16, when the UE receives the paging message for CS domain, UE shall,

- not respond to the paging message for CS domain.

At step11 and 21, when the UE receives the paging message for PS domain, UE shall,

- not respond to the paging message for PS domain.

At step27, when the USIM is replaced, UE shall:

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain, UE shall,

- respond to the paging message for CS domain by sending the RAGING RESPONSE message.

12.2.2.5 Combined PS attach / rejected / PS services and non-PS services not allowed

12.2.2.5.1 Definition

12.2.2.5.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause '~~PS services and non-PS services not allowed~~GPRS services and non-GPRS services not allowed', the User Equipment shall consider USIM invalid for PS and non-PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause '~~PS services and non-PS services not allowed~~GPRS services and non-GPRS services not allowed', the User Equipment shall delete the stored TMSI, LAI, CSKN, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.5.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure of the UE with the cause '~~PS services and non-PS services not allowed~~GPRS services and non-GPRS services not allowed'.

12.2.2.5.4 Method of test

Initial condition

System Simulator:

- Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
  Both cells are operating in network operation mode I.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

- The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value '~~PS services and non-PS services not allowed~~GPRS services and non-GPRS services not allowed'. The SS checks that the UE does not perform PS attach in the same or another PLMN. CS

services are not possible as the USIM is blocked for CS services. PS services are not possible as the USIM is blocked for PS services.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -IMSI attach' or 'GPRS~~PS~~ attach while IMSI attached' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
5	<-		ATTACH REJECT	GMM cause '~~PS services and non-PS services not allowed~~GPRS services and non-GPRS services not allowed'
6	UE			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
7	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS Paging.
10	UE			No response from the UE to the request. This is checked for 10 seconds
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
12			(void)	
13	UE			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
14	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
15	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
16	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
17	UE			No response from the UE to the request. This is checked for 10seconds.
18	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.
19	UE			The UE is powered up or switched.
20	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is IMSI.
21	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
22	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -IMSI attach' or 'GPRS~~PS~~ attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
22a	<-		AUTHENTICATION AND CIPHERING REQUEST	
22b	->		AUTHENTICATION AND CIPHERING RESPONSE	
22c	SS			The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
23		<-	ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-2
24		->	ATTACH COMPLETE	
25		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
26		->	RRC CONNECTION REQUEST	
27		<-	RRC CONNECTION SETUP	
28		->	RRC CONNECTION SETUP COMPLETE	
29		->	PAGING RESPONSE	Mobile identity = TMSI-1
30		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
31		->	RRC CONNECTION RELEASE COMPLETE	
32		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services.
33		->	RRC CONNECTION REQUEST	
34		<-	RRC CONNECTION SETUP	
35		->	RRC CONNECTION SETUP COMPLETE	
36		->	SERVICE REQUEST	Service type = "paging response"
37		<-	RRC CONNECTION RELEASE	
38		->	RRC CONNECTION RELEASE COMPLETE	
39	UE			The UE is switched off or power is removed (see ICS).
40		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
41	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.2.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8 and 14, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step10 and 17, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step22, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure.

At step29, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step36, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.6 Combined PS attach / rejected / PS services not allowed

12.2.2.6.1 Definition

12.2.2.6.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause '~~PS services not allowed~~GPRS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause '~~PS services not allowed~~GPRS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

3) A PS class AUE shall perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2

12.2.2.6.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause '~~PS services not allowed~~GPRS services not allowed'.

12.2.2.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode I.
ATT flag set to 1

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI, P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal attach with the cause value '~~PS services not allowed~~GPRS services not allowed'. The SS checks that the UE does not perform PS attach. PS services are not possible. An UE operation mode A UE shall perform an MM IMSI attach.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on.
2a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
2b	UE			UE initiates an attach automatically (see ICS), via MMI or AT commands.
3		->	ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' or 'GPRS~~PS~~ attach while IMSI attached' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
4		<-	ATTACH REJECT	GMM cause '~~PS services not allowed~~GPRS services not allowed'
5	UE			An automatic MM IMSI attach procedure is initiated.
6	UE		Registration on CS	See TS 34.108 Location updating type = IMSI attach. The SS allocates TMSI-2.
7		<-	PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
8		->	RRC CONNECTION REQUEST	
9		<-	RRC CONNECTION SETUP	
10		->	RRC CONNECTION SETUP COMPLETE	
11		->	PAGING RESPONSE	Mobile identity = TMSI-2
12		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signaling link.
13		->	RRC CONNECTION RELEASE COMPLETE	
				The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			A location updating procedure is initiated.
17	UE		Registration on CS	See TS 34.108 Location updating type = normal. The SS allocates TMSI-1.
18		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
19		->	RRC CONNECTION REQUEST	
20		<-	RRC CONNECTION SETUP	
21		->	RRC CONNECTION SETUP COMPLETE	
22		->	PAGING RESPONSE	Mobile identity = TMSI-1
23		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
24		->	RRC CONNECTION RELEASE COMPLETE	
25		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging is for PS services
26	UE			No response from the UE to the request. This is checked for 10seconds.
27	UE			If possible (see ICS) switch off is performed. Otherwise the power is removed.

Step	Direction		Message	Comments
	UE	SS		
27a	UE			If switch off is performed then UE performs IMSI detach procedure.
28	UE			The UE is powered up or switched.
28a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
28b	UE			UE initiates an attach automatically (see ICS), via MMI or AT commands.
29	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' or 'GPRS~~PS~~ attach while IMSI attached' Mobile identity = IMSI
29a	<-		AUTHENTICATION AND CIPHERING REQUEST	
29b	->		AUTHENTICATION AND CIPHERING RESPONSE	
29c	SS			The SS starts integrity protection.
30	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-2 Routing area identity = RAI-2
31	->		ATTACH COMPLETE	
32	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
33	->		RRC CONNECTION REQUEST	
34	<-		RRC CONNECTION SETUP	
35	->		RRC CONNECTION SETUP COMPLETE	
36	->		PAGING RESPONSE	Mobile identity = TMSI-2
37	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
38	->		RRC CONNECTION RELEASE COMPLETE	
39	UE			The UE is switched off or power is removed (see ICS).
40	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
41	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.2.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, if the UE is PS class A, UE shall:

- perform the MM IMSI attach procedure.

At step11, 22 and 36, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step26, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step29, UE shall:

- perform the PS attach procedure.

12.2.2.7a Combined PS attach / rejected / location area not allowed

12.2.2.7a.1 Definition

12.2.2.7a.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for regional provision of service'.

   1.4 not delete the list of "equivalent PLMNs".

   1.5 perform a cell selection.

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   2.1 perform combined PS attach when a new location area is entered.

   2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.2.2.7a.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All cells are operating in network operation mode I.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
Switch off on button	Yes/No
Automatic PS attach procedure at switch on or power on	Yes/No
PS attach attempted automatically by outstanding request	Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ / IMSI attach' or "GPRS~~PS~~ Attach while IMSI attached" Mobile identity = P-TMSI-1 Routing area identity = RAI-1
3b	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
3c	<-		DETACH REQUEST	Detach type = re-attach required
3d	->		DETACH ACCEPT	
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' or "GPRS~~PS~~ Attach while IMSI attached" Mobile identity = P-TMSI-1 Routing area identity = RAI-1
5	<-		ATTACH REJECT	GMM cause 'Location Area not allowed'
6	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
7	<-		PAGING TYPE1	Mobile identity = TMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	->			No response from the UE to the request. This is checked for 10 seconds
		SS		The following messages are sent and shall be received on cell B.
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
11a	UE			The UE performs cell selection.
12	UE			Cell B is preferred by the UE.
13	UE			No ATTACH REQUEST or LOCATION UPDATING REQ is sent to SS (SS waits 60 seconds)
15	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
16	UE			No response from the UE to the request. This is checked for 10seconds.
17	UE			The UE initiates an attach by MMI or AT command.
18				No attach is performed by the UE. This is checked for 10 seconds.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell C.
19		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
19a		UE		The UE performs cell selection
20		UE		Cell C is preferred by the UE. Step 20a and 20b are only performed by an UE which will not initiate a PS attach automatically (see ICS)
20a conditional		UE	Registration on CS	Parameter Mobile identity is IMSI. See TS 34.108
20b conditional		UE		UE initiates an attach via MMI or AT commands.
21	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ / IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c		SS		The SS starts integrity protection.
22	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
23	->		ATTACH COMPLETE	
24	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
25	->		RRC CONNECTION REQUEST	
26	<-		RRC CONNECTION SETUP	
27	->		RRC CONNECTION SETUP COMPLETE	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
30	->		RRC CONNECTION RELEASE COMPLETE	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
32	->		RRC CONNECTION REQUEST	
33	<-		RRC CONNECTION SETUP	
34	->		RRC CONNECTION SETUP COMPLETE	
35	->		SERVICE REQUEST	Service type = "paging response"
36	<-		RRC CONNECTION RELEASE	
37	->		RRC CONNECTION RELEASE COMPLETE	
38	UE			The UE is switched off or power is removed (see ICS).
39	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
39a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
40	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note) Cell B is preferred by the UE.
41	UE			The UE is powered up or switched on and initiates an attach (see ICS).
42				Step 43 is only performed for non-auto attach UE.
43	UE		Registration on CS	See TS 34.108
44	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
45	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' or "GPRS~~PS~~ Attach while IMSI attached" Mobile identity = P-TMSI-1 Routing area identity = RAI-6
45a	<-		AUTHENTICATION AND CIPHERING REQUEST	
45b	->		AUTHENTICATION AND CIPHERING RESPONSE	
45c	SS			The SS starts integrity protection.
46	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-4 Equivalent PLMNs = MCC2,MNC1
47	->		ATTACH COMPLETE	
48	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
49	->		RRC CONNECTION REQUEST	
50	<-		RRC CONNECTION SETUP	
51	->		RRC CONNECTION SETUP COMPLETE	
52	->		PAGING RESPONSE	Mobile identity = TMSI-2
53	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
54	->		RRC CONNECTION RELEASE COMPLETE	
55	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
56	->		RRC CONNECTION REQUEST	
57	<-		RRC CONNECTION SETUP	
58	->		RRC CONNECTION SETUP COMPLETE	
59	->		SERVICE REQUEST	service type = "paging response"
60	<-		RRC CONNECTION RELEASE	
61	->		RRC CONNECTION RELEASE COMPLETE	
62	UE			The UE is switched off or power is removed (see ICS).
63	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS -~~/ IMSI detach'
64	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.2.2.7a.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence

At step6, when the UE receives the ATTACH REJECT message with GMM cause = 'Location Area not allowed', UE shall:

- not initiate MM location updating procedure.

At step8, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step10 and 16, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 18, when the UE is in the same location area, UE shall:

- not perform PS attach procedure.

At step21, when the UE enters a new location area, UE shall

- perform the combined PS attach procedure.

At step28 and 52, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35 and 59, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step45, when the UE is powered up or switched on, UE shall:

- perform the combined PS attach procedure.

12.2.2.7b Combined PS attach / rejected / No Suitable Cells In Location Area

12.2.2.7b.1 Definition

12.2.2.7b.2 Conformance requirement

1) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

   1.3 store the LA in the 'forbidden location areas for roaming'.

   1.4 not delete the list of "equivalent PLMNs".

2) If the network rejects a combined PS attach procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   2.1 search for a suitable cell in a different location area on the same PLMN.

Reference

3GPP TS 24.008 clauses 4.7.3.2.

12.2.2.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the combined PS attach procedure with the cause 'No Suitable Cells In Location Area'.

12.2.2.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined PS attach with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall search for a suitable cell in a different location area on the same PLMN and shall perform combined PS attach procedure in that cell

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
5	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6	<-		DETACH REQUEST	Detach type = re-attach required
7	->		DETACH ACCEPT	
8		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
9	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
10	<-		ATTACH REJECT	GMM cause = 'No Suitable Cells In Location Area'
11		SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell B.
12	UE			The UE initiates an attach automatically, by MMI or by AT command.
13	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
14	<-		AUTHENTICATION AND CIPHERING REQUEST	
15	->		AUTHENTICATION AND CIPHERING RESPONSE	
16		SS		The SS starts integrity protection.
17	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
18	->		ATTACH COMPLETE	

19 20	UE ->	 DETACH REQUEST	The UE is switched off or power is removed (see ICS). Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
21	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.2.2.7b.5 Test requirements

At step4 and 9, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected sequence.

At step13, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- initiate the combined PS attach procedure.

12.2.2.7c Combined PS attach / rejected / Roaming not allowed in this location area

12.2.2.7c.1 Definition

12.2.2.7c.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'Roaming ~~area~~ not allowed in this location area' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 delete any TMSI, LAI and ciphering key sequence number.

   1.4 store the LAI in the list of "forbidden location areas for roaming".

   1.5 perform a PLMN selection.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.2.7c.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'Roaming not allowed in this location area'.

12.2.2.7c.4 Method of test

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) , cell C in MCC1/MNC1/LAC2/RAC2 (RAI-12)
All three cells are operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'Roaming ~~area~~ not allowed in this location area'. The SS checks that the UE performs PLMN selection.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -/-IMSI attach' or "GPRS~~PS~~ Attach while IMSI attached" Mobile identity = P-TMSI-1 Routing area identity = RAI-1
5		<-	ATTACH REJECT	GMM cause = 'Roaming ~~area~~ not allowed in this location area'
6	UE			No LOCATION UPDATING REQ and ATTACH REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
7		<-	PAGING TYPE1	Mobile identity = TMSI Paging order is for CS services.
8	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
9		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10		->		No response from the UE to the request. This is checked for 10 seconds
11	UE			UE performs PLMN selection.
				The following messages are sent and shall be received on cell B.
12		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
13	UE			Cell B is preferred by the UE.
14	UE			No LOCATION UPDATING REQ is sent to SS (SS waits 60 seconds)
15		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
15a		<-	AUTHENTICATION AND CIPHERING REQUEST	
15b		->	AUTHENTICATION AND CIPHERING RESPONSE	
15c		SS		The SS starts integrity protection.
16		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-4
17		->	ATTACH COMPLETE	
				The following messages are sent and shall be received on cell C.
18		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
19	UE			Cell C is preferred by the UE.
20	UE		Registration on CS	Parameter Mobile identity is IMSI. See TS 34.108

Step	Direction		Message	Comments
	UE	SS		
21	UE			UE initiates an attach automatically (see ICS) via MMI or AT commands.
22		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
23		->	RRC CONNECTION REQUEST	
24		<-	RRC CONNECTION SETUP	
25		->	RRC CONNECTION SETUP COMPLETE	
26		->	PAGING RESPONSE	Mobile identity = TMSI-1
27		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
28		->	RRC CONNECTION RELEASE COMPLETE	
29		<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
30		->	RRC CONNECTION REQUEST	
31		<-	RRC CONNECTION SETUP	
32		->	RRC CONNECTION SETUP COMPLETE	
33		->	SERVICE REQUEST	Service type = "paging response"
34		<-	RRC CONNECTION RELEASE	
35		->	RRC CONNECTION RELEASE COMPLETE	
36	UE			The UE is switched off or power is removed (see ICS).
37		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
38	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.2.2.7c.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, UE shall:

- not perform MM IMSI attach and PS attach.

At step8, UE shall:

- not respond to paging for CS domain service.

At step10, UE shall:

- not respond to paging for PS domain service.

At step15, UE shall:

- perform PS attach procedure.

At step20, UE shall:

- perform MM IMSI attach procedure.

12.2.2.7d Combined PS attach / rejected / PS services not allowed in this PLMN

12.2.2.7d.1 Definition

12.2.2.7d.2 Conformance requirement

1) If the network rejects a PS attach procedure from the User Equipment with the cause 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the PS update status to GU3 ROAMING NOT ALLOWED.

   1.3 store the PLMN identity in the "forbidden PLMNs for PS service" list.

2) If the UE is in UE operation mode A the User Equipment shall:

   2.1 perform IMSI attach for non-GPRS services by use of the MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.1.

12.2.2.7d.3 Test purpose

To test the behaviour of the UE if the network rejects the PS attach procedure of the UE with the cause 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~'.

12.2.2.7d.4 Method of test

Initial condition

System Simulator:

Two cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2). All two cells are operating in network operation mode I.

The PLMN contains Cell B is equivalent to the PLMN that contains Cell A.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a PS attach with the cause value 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~'. The SS checks that the UE does not perform PS attach and performs an IMSI attach for non-PS services by use of the MM IMSI attach procedure when in the same cell.

After the cell is changed to equivalent PLMN, the UE shall perform PS attach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2		SS		The SS is set in network operation mode I. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Non-suitable cell ". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
5	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
6	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
7	<-		DETACH REQUEST	Detach type = re-attach required
8	->		DETACH ACCEPT	
9	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
10	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
11	<-		ATTACH REJECT	GMM cause = 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~'
12	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
13		SS		Set the cell type of cell A to the " Non-suitable cell ". Set the cell type of cell B to the " Serving cell". (see note) The following messages are sent and shall be received on cell B.
14	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
15	<-		AUTHENTICATION AND CIPHERING REQUEST	
16	->		AUTHENTICATION AND CIPHERING RESPONSE	
17		SS		The SS starts integrity protection.
18	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2 Equivalent PLMNs = MCC1,MNC1
19	->		ATTACH COMPLETE	
20	UE			The UE is switched off or power is removed (see ICS).
21	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'

22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.2.2.7d.5 Test requirements

At step5 and 10, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step4 and 9, UE shall:

- perform MM IMSI attach.

At step12, UE shall:

- not perform PS attach procedure.

At step14, UE shall:

- perform PS attach procedure.

12.2.2.8 Combined PS attach / abnormal cases / attempt counter check / miscellaneous reject causes

12.2.2.8.1 Definition

12.2.2.8.2 Conformance requirement

1) When a combined PS attach procedure is rejected with the attempt counter less than five, the User Equipment shall repeat the combined PS attach procedure after T3311 timeout.

2) When a combined PS attach procedure is rejected with the attempt counter five, the User Equipment shall delete the stored TMSI, LAI, CKSN, P-TMSI, P-TMSI signature, PS CKSN and RAI and start T3302.

3) When the T3302 expire, a new combined PS attach procedure shall be initiated.

GMM cause codes that can be selected are: 'IMSI unknown in HLR' 'MS~~UE~~ identity cannot be derived by the network' 'Network failure' 'Congestion' 'retry upon entry into a new cell' 'Semantically incorrect message' 'Invalid mandatory information' 'Message type non-existent or not implemented' 'Message type not compatible with the protocol state' 'Information element non-existent or not implemented' 'Conditional IE error' 'Message not compatible with the protocol state' 'Protocol error, unspecified'

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.8.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.2.2.8.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No Automatic PS attach procedure at switch on or power on Yes/No

Switch off on button Yes/No

Test procedure

The UE initiates a combined PS attach procedure (attempt counter zero).

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter one) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter two) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter three) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE initiates a new combined PS attach procedure (attempt counter four) after T3311 expires.

The SS rejects the attach with an arbitrarily chosen cause code.

The UE shall not perform a new successful attach procedure after 15 seconds.

The UE initiates a combined PS attach procedure with attempt counter zero after T3302 expires without P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 10 minutes.

T3311; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
4	<-		ATTACH REJECT	Arbitrary chosen GMM cause T3302 with value 10 min.
5	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
6	SS			The SS verifies that the time between the attach reject and attach request is T3311
7	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
8	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
9	SS			The SS verifies that the time between the attach reject and attach request is T3311
10	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
11	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
12	SS			The SS verifies that the time between the attach reject and attach request is T3311
13	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
14	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
15	SS			The SS verifies that the time between the attach reject and attach request is T3311
16	<-		ATTACH REJECT	Arbitrarily chosen GMM cause T3302 with value 10 min.
17 (optional step)	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Location Update Procedure may be initiated from the UE. Parameter mobile identity is IMSI.
20	<-		PAGING TYPE1	Paging order is for PS services. Mobile identity = P-TMSI-1
21	UE			No response from the UE to the request. This is checked for 10seconds.
21a			Void	
22	SS			The SS verifies that the UE does not attempt to attach for T3302 .
23	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' 'GPRS~~PS~~ attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
23a	<-		AUTHENTICATION AND CIPHERING REQUEST	
23b	->		AUTHENTICATION AND CIPHERING RESPONSE	
23c	SS			The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
24		<-	ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity P-TMSI-1 P-TMSI signature Mobile identity = TMSI-1 Routing area identity = RAI-1
25		->	ATTACH COMPLETE	
26		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services..
27		->	RRC CONNECTION REQUEST	
28		<-	RRC CONNECTION SETUP	
29		->	RRC CONNECTION SETUP COMPLETE	
30		->	PAGING RESPONSE	Mobile identity = TMSI-1
31		<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
32		->	RRC CONNECTION RELEASE COMPLETE	
33		<-	PAGING TYPE1	Mobile identity = P-TMSI-1
33a		->	RRC CONNECTION REQUEST	
33b		<-	RRC CONNECTION SETUP	
33c		->	RRC CONNECTION SETUP COMPLETE	
34		->	SERVICE REQUEST	Service type = "paging response"
34a		<-	RRC CONNECTION RELEASE	
34b		->	RRC CONNECTION RELEASE COMPLETE	
35	UE			The UE is switched off or power is removed (see ICS).
36		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
37	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.2.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the conditions described below.

Case1) A combined PS attach procedure is rejected with the attempt counter less than five

At step 5, 8, 11 and 14, when the timer T3311 timeout has occurred, UE shall:

- repeat the combined PS attach procedure.

Case2) A combined PS attach procedure is rejected with the attempt counter five

At step21, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

Case3) The T3302 expires

At step23, UE shall:

- re-initiate the new combined PS attach procedure.

At step30, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step34, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.2.2.9 Combined PS attach / abnormal cases / PS detach procedure collision

12.2.2.9.1 Definition

12.2.2.9.2 Conformance requirement

1) When a DETACH REQUEST message is received by the UE (any cause except re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.

2) When a DETACH REQUEST message is received by the UE (cause re-attach) while waiting for an ATTACH ACCEPT message or ATTACH REJECT message, the UE shall ignore the combined PS detach procedure and continue with the combined PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.3.2.

12.2.2.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.2.2.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI and RAI. UE is Idle Updated.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
Re-attach automatically when the network commands a detach with no cause value Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (any cause except re-attach). The UE shall terminate the combined PS attach procedure and continue with the combined PS detach procedure.

The UE initiates a combined PS attach procedure. The SS does not answer the combined PS attach procedure, but initiates a combined PS detach procedure (cause re-attach). The UE shall ignore the combined PS detach procedure and continue with the combined PS attach. CS services are also possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
5	<-		DETACH REQUEST	Detach type = 're-attach not required'
6	->		DETACH ACCEPT	
7			(void)	
8			(void)	
9	UE			The UE is attached by MMI or AT command if the UE does not re-attach automatically upon receiving a network initiated detach with no cause value, (see IXIT).
10	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
11	SS			The SS ignores the ATTACH REQUEST message and initiates a detach procedure.
12	<-		DETACH REQUEST	Detach type = 're-attach required'
13	UE			The UE ignores the DETACH REQUEST message and continue with the attach procedure
14	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-1
15	->		ATTACH COMPLETE	
16	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
17	->		RRC CONNECTION REQUEST	
18	<-		RRC CONNECTION SETUP	
19	->		RRC CONNECTION SETUP COMPLETE	
20	->		PAGING RESPONSE	Mobile identity = TMSI-2
21	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
22	->		RRC CONNECTION RELEASE COMPLETE	
23	<-		PAGING TYPE1	Paging order is for PS services. Mobile identity = P-TMSI-2
23a	->		RRC CONNECTION REQUEST	
23b	<-		RRC CONNECTION SETUP	
23c	->		RRC CONNECTION SETUP COMPLETE	
24	->		SERVICE REQUEST	Service type = "paging response"
24a	<-		RRC CONNECTION RELEASE	
24b	->		RRC CONNECTION RELEASE COMPLETE	
25	UE			The UE is switched off or power is removed (see ICS).
26	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'

Step	Direction		Message	Comments
	UE	SS		
27	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.2.2.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the Detach type described below.

Case1) Detach type is not re-attach

At step6, UE shall:

- respond to DETACH REQUEST message by sending DETACH ACCEPT message.

Case2) Detach type is re-attach

At step13, UE shall:

- ignore the PS detach procedure.

At step15, UE shall:

- send the ATTACH COMPLETE message.

At step20, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step24, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.3 PS detach procedure

12.3.1 UE initiated PS detach procedure

12.3.1.1 PS detach / power off / accepted

12.3.1.1.1 Definition

12.3.1.1.2 Conformance requirement

The UE detaches the IMSI for PS services if the UE is switched off.

Reference

3GPP TS 24.008 clause 4.7.4.1

12.3.1.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set o attach to the PS services only (see ICS). If that is not supported by the UE, goto step 8.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE is switched off (see ICS).
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'power switched off, GPRS ~~PS~~ detach'
7a				The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
8	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 7a.

Specific message contents

None.

12.3.1.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE is switched off, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, GPRS ~~PS~~ detach'.

12.3.1.2 PS detach / accepted

12.3.1.2.1 Definition

12.3.1.2.2 Conformance requirement

1) The GPRS detach procedure is initiated by the UE by sending a DETACH REQUEST message. The detach type information element may indicate "GPRS detach with switching off", "GPRS detach without switching off", "IMSI detach", "GPRS/IMSI detach with switching off" or "GPRS/IMSI detach without switching off".

   The UE shall include the P-TMSI in the DETACH REQUEST message. The UE shall also include a valid P-TMSI signature, if available.

2) Upon completion of the detach procedure, the used P-TMSI signature shall be deleted.

Reference

3GPP TS 24.008 clause 4.7.4.1.1

3GPP TS 24.008 clause 4.7.1.3

12.3.1.2.3 Test purpose

To test the behaviour of the UE for the detach procedure, including treatment of P-TMSI signature.

12.3.1.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
UE PS Release Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

The UE performs a PS attach procedure.

The UE sends a DETACH REQUEST message to the SS.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to the PS services only (see ICS). If that is not supported by the UE, goto step 18.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
5			(void)	
6	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach"
7	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach' Mobile identity = P-TMSI-1 P-TMSI-1 signature
7a	SS			The SS starts ciphering and integrity protection.
8	<-		DETACH ACCEPT	
8a	SS			The SS releases the RRC connection.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
11	UE			The UE initiates an attach by MMI or AT commands
12	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
12a	SS			The SS starts ciphering and integrity protection.
13	<-		ATTACH ACCEPT	No new mobile identity assigned Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-1
14	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
15	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach' Mobile identity = P-TMSI-1
16	<-		DETACH ACCEPT	
17			(void)	
18	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 16.

Specific message contents

None.

12.3.1.2.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, UE shall:

- send the DETACH REQUEST message (without power off) to SS with mobile identity P-TMSI-1 and P-TMSI-1 signature.

At step10, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step 12, UE shall

- initiate ATTACH REQUEST message without P-TMSI signature IE.

At step 15, UE shall:

- send the DETACH REQUEST message (without power off) to SS with mobile identity P-TMSI-1 and without P-TMSI-1 signature.

12.3.1.3 PS detach / abnormal cases / attempt counter check / procedure timeout

12.3.1.3.1 Definition

12.3.1.3.2 Conformance requirement

1) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter less than five, the User Equipment shall repeat the PS detach procedure.

2) When a T3321 timeout has occurred during a PS detach procedure with the attempt counter five, the User Equipment shall not repeat the procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.3.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.3.1.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The UE initiates a PS detach procedure (attempt counter zero). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter one) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter two) after T3321expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter three) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure (attempt counter four) after T3321 expires. The SS does not answer with DETACH ACCEPT message before T3321 timeout.

The UE initiates a new PS detach procedure with attempt counter five (after T3321expires). The SS does not answer with DETACH ACCEPT message before T3321 timeout.

At T3321 timeout in the UE, the UE then deletes the logical link since the retransmissions have been repeated four times.

The UE performs a new PS attach procedure.

T3321; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 25.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-1
5	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
6	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach'
7	SS			No response is given from the SS.
8	SS			The SS verifies that the time between the detach requests is 15 seconds
9	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach'
10	SS			No response is given from the SS.
11	SS			The SS verifies that the time between the detach requests is 15 seconds
12	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach'
13	SS			No response is given from the SS.
14	SS			The SS verifies that the time between the detach requests is 15 seconds
15	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach'
16	SS			No response is given from the SS.
17	SS			The SS verifies that the time between the detach requests is 15 seconds
18	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach'
19	SS			No response is given from the SS within 40 seconds and SS verifies that the UE will not send a DETACH REQUEST again.
20	UE			Initialte a PS attach
21	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c	SS			The SS starts integrity protection.
22	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-1
23				UE is switched off or power is removed (see ICS)
24	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'

Step	Direction		Message	Comments
	UE	SS		
24a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
25	UE			The UE is set in UE operation mode A (see ICS) and the test is repeated from step 2 to step 24.

Specific message contents

None.

12.3.1.3.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attachÈprocedure with the information elements specified in the above Expected Sequence.

At step9, 12, 15 and 18, when a T3321 expires with the attempt counter less than five, UE shall:

- initiate the new PS detach procedure.

At step19, when the attempt counter is greater than or equal to five, UE shall:

- not repeat the PS detach procedure.

At step20, UE shall:

- initiate the PS attachÈprocedure.

12.3.1.4 PS detach / abnormal cases / GMM common procedure collision

12.3.1.4.1 Definition

12.3.1.4.2 Conformance requirement

When any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off", the UE shall ignore the GMM common message.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.4.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The following test procedure is repeated for sequence counter k = 1,2,3:

The UE performs a PS attach.

The UE initiates a PS detach. The SS initiates a P-TMSI REALLOCATION COMMAND message (k=1), a GMM STATUS message (k=2) and a GMM INFORMATION message (k=3). The UE shall ignore the GMM common messages and continue with the PS detach procedure. The sending of the P-TMSI REALLOCATION COMMAND message (k = 1), the GMM STATUS message (k = 2), the GMM INFORMATION message (k = 3) and the DETACH ACCEPT message shall be completed within Timer T3321 -10%.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

The test sequence is repeated for k = 1 Ö 3

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a detach (without power off) by MMI or AT command.
7	->		DETACH REQUEST	Detach type = 'normal detach, GPRS ~~PS~~ detach'
8A (k=1)	SS			The SS sends a P-TMSI REALLOCATION COMMAND message
9A (k=1)	<-		P-TMSI REALLOCATION COMMAND	
10A (k=1)	UE			The UE ignores the message. This is verified for 10 seconds.
8B (k=2)	SS			The SS sends a GMM STATUS message
9B (k=2)	<-		GMM STATUS	
10B (k=2)	UE			The UE ignores the message. This is verified for 10 seconds.
8C (k=3)	SS			The SS sends a GMM INFORMATION message
9C (k=3)	<-		GMM INFORMATION	
10C (k=3)	UE			The UE ignores the message which is verified for 10 seconds or if GMM INFORMATION message not implemented, sends a GMM STATUS with GMM Cause 'Message type non-existent or not implemented'.
11	<-		DETACH ACCEPT	The SS responds to the DETACH REQUEST
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds.

Note: Steps 8x, 9x, 10x and 11 shall be completed within Timer T3321 -10%.

Specific message contents

None.

12.3.1.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step 10A, 10B, 10C and 13, when any of the GMM common messages P-TMSI REALLOCATION COMMAND, GMM STATUS or GMM INFORMATION is received by the UE while waiting for a DETACH ACCEPT message with detach cause different from "power off, UE shall:

- ignore any of the GMM common message.

12.3.1.5 PS detach / power off / accepted / PS/IMSI detach

12.3.1.5.1 Definition

12.3.1.5.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.5.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. The UE then deletes the logical link.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is setto attach to both the PS and non-PS services (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE is switched off (see ICS).
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'power switched off, combined GPRS ~~PS -~~/ IMSI detach'
7a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.1.5.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE is switched off, UE shall:

- send the DETACH REQUEST message to SS with the Detach type = 'power switched off, combined ~~PS~~ GPRS/ IMSI detach'.

12.3.1.6 PS detach / accepted / PS/IMSI detach

12.3.1.6.1 Definition

12.3.1.6.2 Conformance requirement

The UE detach the IMSI for PS and non-PS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.6.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.6.4 Method of test

Initial condition

System Simulator:

- One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No
  User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE sends a DETACH REQUEST message to the SS. When the UE receives the DETACH ACCEPT, the UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to both the PS and non-PS services (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE initiates a detach (without power off) by MMI or AT command (see ICS).
6a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
7	->		DETACH REQUEST	Detach type = 'normal detach, combined GPRS ~~PS -~~/ IMSI detach'
8	<-		DETACH ACCEPT	
8a	SS			The SS releases the RRC connection.
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
11	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
12	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.6.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step12, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.3.1.7 PS detach / accepted / IMSI detach

12.3.1.7.1 Definition

12.3.1.7.2 Conformance requirement

The UE shall detach for CS services.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.7.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.1.7.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

- The UE has a valid IMSI.

Related ICS/IXIT statements

- Support of PS service Yes/No
  UE operation mode A Yes/No
  Switch off on button Yes/No
  Automatic PS attach procedure at switch on or power on Yes/No
  User requested non-PS detached Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE performs an PS detach (for non-PS services).

CS services are not possible.

The UE attach for non-PS services by a routing area update procedure and CS services are again possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a detach for non-PS services (without power off) (see ICS).
7	->		DETACH REQUEST	Detach type = 'normal detach, IMSI detach'
8	<-		DETACH ACCEPT	
9	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
9a	->		RRC CONNECTION REQUEST	
9b	<-		RRC CONNECTION SETUP	
9c	->		RRC CONNECTION SETUP COMPLETE	
10	->		SERVICE REQUEST	service type = "paging response"
10a	<-		RRC CONNECTION RELEASE	
10b	->		RRC CONNECTION RELEASE COMPLETE	
11	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging order is for RRC connection.
12	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
13	UE			The UE initiates an attach for non-PS services by a RA update procedure (see ICS).
14	->		ROUTING AREA UPDATE REQUEST	Update type = "Combined RA/LA updating with IMSI attach" Routing area identity = RAI-1
15	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated'' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
16	->		ROUTING AREA UPDATE COMPLETE	
17	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
18	->		RRC CONNECTION REQUEST	
19	<-		RRC CONNECTION SETUP	
20	->		RRC CONNECTION SETUP COMPLETE	
21	->		PAGING RESPONSE	Mobile identity = TMSI-1
22	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
23	->		RRC CONNECTION RELEASE COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
24 25	UE ->		DETACH REQUEST	The UE is switched off or power is removed (see ICS). Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
26	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.1.7.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, after the detach procedure (Detach type = 'normal detach, IMSI detach') is completed, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step12, after the detach procedure (Detach type = 'normal detach, IMSI detach') is completed, UE shall:

- not respond to the paging message for CS.

At step21, after the routing area updating procedure (Update type = 'Combined RA/LA updating') is completed, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.1.8 PS detach / abnormal cases / change of cell into new routing area

12.3.1.8.1 Definition

12.3.1.8.2 Conformance requirement

When a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, the UE shall abort the PS detach procedure and re-initiate it after the routing area update procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

Sufficient time is given for the UE to identify the neighbour cell before the UE is triggered to initiate a PS detach procedure. The DETACH ACCEPT message is delayed from the SS.

The UE performs a cell reselection to a cell in a new routing area and performs a routing area update procedure.

The UE shall re-initiate a PS detach procedure when the routing area update procedure is finished.

The UE deletes the logical link.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
6a		SS		SS waits 30 sec.
7	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
8		->	DETACH REQUEST	Detach type = 'normal detach, combined GPRS ~~PS -~~/ IMSI detach'
9		SS		No response to the DETACH REQUEST message is given by the SS
				The following messages are sent and shall be received on cell B.
10		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note) Cell B is preferred by the UE.
11	UE			The UE performs a RA update in the new cell.
12		->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = valid TMSI available or IE omitted
13		<-	ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-4
14		->	ROUTING AREA UPDATE COMPLETE	
15		->	DETACH REQUEST	The detach is automatically re-attempted. Detach type = 'normal detach, combined GPRS ~~PS -~~/ IMSI detach'
16		<-	DETACH ACCEPT	
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.3.1.8.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step12, when a change of cell into a new routing area is performed before DETACH ACCEPT message is received by the UE, UE shall:

- abort a PS detach procedure.
- perform routing area updating procedure.

At step15, when the UE completes a routing area updating procedure, UE shall:

- re-initiate the PS detach procedure.

12.3.1.9 PS detach / abnormal cases / PS detach procedure collision

12.3.1.9.1 Definition

12.3.1.9.2 Conformance requirement

When a DETACH REQUEST is received by the UE while waiting for a DETACH ACCEPT message, the UE shall answer the network initiated PS GPRS detach procedure.

Reference

3GPP TS 24.008 clause 4.7.4.1.

12.3.1.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.3.1.9.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
User requested combined PS and non-PS detached without powering off Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The UE initiates a PS detach. The SS does not answer the detach procedure, but initiates a detach procedure (cause re-attach not required). The UE shall continue with the network initiated detach procedure.

The UE deletes the logical link.

PS and CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A(see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates a PS detach (without power off) by MMI or AT command.
7	->		DETACH REQUEST	Detach type = 'normal detach, combined GPRS ~~PS~~ / IMSI detach'
8	<-		DETACH REQUEST	Detach type = 're-attach not required'
9	->		DETACH ACCEPT	The UE answers the network initiated detach.
10	<-		DETACH ACCEPT	The SS answers the UE initiated detach.
11	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
12	UE			No response from the UE to the request. This is checked for 10 seconds.
13	<-		PAGING TYPE 1	Mobile identity = TMSI-1 Paging order is for CS services.
14	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.

Specific message contents

None.

12.3.1.9.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE receives DETACH REQUEST message from SS before UE initiated GPRS ~~PS~~ detach procedure has been completed, UE shall:

- send the DETACH ACCEPT message to SS.

At step12, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step14, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.3.2 Network initiated PS detach procedure

12.3.2.1 PS detach / re-attach not required / accepted

12.3.2.1.1 Definition

12.3.2.1.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.1.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a PS attach procedure.

The SS sends a DETACH REQUEST message to the UE. The UE then deletes the logical link.

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The SS is set in network operation mode II.
2	UE			The UE is set to either attach to PS only or both the PS and non-PS services (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
7		SS		The SS initiates a PS detach.
8	<-		DETACH REQUEST	Detach type = 're-attach not required' GMM cause = ëGPRS services and non-GPRS services not allowedí
9	->		DETACH ACCEPT	
9a		SS		The SS releases the RRC connection.
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.

Specific message contents

None.

12.3.2.1.5 Test requirements

At step 3a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE receives the DETACH REQUEST message from SS and the detach type IE indicates 're-attach not required', the UE shall:

- send DETACH ACCEPT message to SS.

At step11, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

12.3.2.2 PS detach / rejected / IMSI invalid / PS services not allowed

12.3.2.2.1 Definition

12.3.2.2.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause '~~PS services not allowed~~GPRS services not allowed', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network performs a PS detach procedure with the cause '~~PS services not allowed~~GPRS services not allowed' the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.2.3 Test purpose

To test the behaviour of the UE if the network orders a PS detach procedure with the cause '~~PS services not allowed~~GPRS services not allowed' (no valid PS-subscription for the IMSI).

12.3.2.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (HPLMN, RAI-1) and cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2).
Both cells are operating in network operation mode II.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS performs a detach with the cause value '~~PS services not allowed~~GPRS services not allowed'. The SS checks that the UE does not perform PS attach in another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 22.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
4		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
7		<-	DETACH REQUEST	Detach type = 're-attach not required' Cause = '~~PS services not allowed~~GPRS services not allowed'
8		->	DETACH ACCEPT	
				The following messages are sent and shall be received on cell B.
9		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
10	UE			Cell B is preferred by the UE. Step 11 is only performed for UE Operation Mode A.
11	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is IMSI.
12				The UE initiates an attach automatically (see ICS), by MMI or AT commands.
13	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
14	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
15	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
15a	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
16		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
16a		<-	AUTHENTICATION AND CIPHERING REQUEST	

16b	->	AUTHENTICATION AND CIPHERING RESPONSE	
16c	SS		The SS starts integrity protection.
17	<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
18	->	ATTACH COMPLETE	
19	UE		The UE is switched off or power is removed (see ICS).
20	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
20a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
21			Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
22	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 3 to step 18.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.3.2.2.5 Test requirements

At step4 and 15, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives the DETACH REQUEST message (Detach type = 're-attach not required', Cause = '~~PS services not allowed~~GPRS services not allowed') from SS, UE shall:

- send DETACH ACCEPT message.

At step13, UE shall:

- not perform PS attach procedure.

12.3.2.3 PS detach / IMSI detach / accepted

12.3.2.3.1 Definition

12.3.2.3.2 Conformance requirement

The UE detach the IMSI for PS services.

Reference

3GPP TS 24.008 clause 4.7.4.2.

12.3.2.3.3 Test purpose

To test the behaviour of the UE for the detach procedure.

12.3.2.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE. The UE then performs an IMSI detach (detach for non-PS services).

The SS signal to the UE, but no response is received, as the signalling link is disconnected.

The UE attach for non-PS services by a routing area update procedure. Both PS and CS services are possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	SS			The SS initiates a detach for non-PS services.
7	<-		DETACH REQUEST	Detach type = 'IMSI detach'
8	->		DETACH ACCEPT	
9	UE			The UE initiates an attach for non-PS services (see ICS).
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated~~ing~~' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
12	->		ROUTING AREA UPDATE COMPLETE	
13	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
14	->		RRC CONNECTION REQUEST	
15	<-		RRC CONNECTION SETUP	
16	->		RRC CONNECTION SETUP COMPLETE	
17	->		PAGING RESPONSE	Mobile identity = TMSI-1
18	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
19	->		RRC CONNECTION RELEASE COMPLETE	
20	UE			The UE is switched off or power is removed (see ICS).
21	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
22	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.2.3.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives the DETACH REQUEST message with Detach type = 'IMSI detach', UE shall;

- send the DETACH ACCEPT message to SS.

At step10, after the completion of the detach procedure, UE shall;

- perform combined routing area updating procedure.

At step17, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.2.4 PS detach / re-attach requested / accepted

12.3.2.4.1 Definition

12.3.2.4.2 Conformance requirement

When receiving the DETACH REQUEST message and the detach type IE indicates "re-attach required", the UE shall deactivate the PDP contexts and deactivate the logical link(s), if any. The UE shall then send a DETACH ACCEPT message to the network and shall change state to GMM-DEREGISTERED. The UE shall, after the completion of the GPRS detach procedure, initiate a GPRS attach procedure. The UE should also activate PDP context(s) to replace any previously active PDP contexts.

A GPRS UE operating in UE operation mode A or B in network operation mode I, which receives an DETACH REQUEST message with detach type indicating "re-attach required" or "re-attach not required" and no cause code, is only detached for GPRS services in the network.

Reference

3GPP TS 24.008 clause 4.7.4.2.2.

12.3.2.4.3 Test purpose

To test the behaviour of the UE for the detach procedure in case automatic re-attach.

12.3.2.4.4 Method of test

Initial condition

System Simulator:

One cell in operating in network operation mode I.

User Equipment:

The UE has a valid TMSI, P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE performs a combined PS attach procedure (for PS and non-PS services).

The SS sends a DETACH REQUEST message to the UE with cause re-attach. The UE then detaches for PS services. The UE automatically performs a new combined PS attach procedure with Attach Type ìGPRS attach while IMSI attachedî (for PS services) and PS and CS services are again possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = TMSI-1 Routing area identity = RAI-1 No new P-TMSI and P-TMSI signature assigned
5	->		ATTACH COMPLETE	
6	SS			The SS initiates a detach with re-attach.
7	<-		DETACH REQUEST	Detach type = 're-attach required', GMM cause omitted
8	->		DETACH ACCEPT	
9	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
10	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = TMSI-1 Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
11	->		ATTACH COMPLETE	
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
12a	->		RRC CONNECTION REQUEST	
12b	<-		RRC CONNECTION SETUP	
12c	->		RRC CONNECTION SETUP COMPLETE	
13	->		SERVICE REQUEST	service type = "paging response"
13a	<-		RRC CONNECTION RELEASE	
13b	->		RRC CONNECTION RELEASE COMPLETE	
14	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
15	->		RRC CONNECTION REQUEST	
16	<-		RRC CONNECTION SETUP	
17	->		RRC CONNECTION SETUP COMPLETE	
18	->		PAGING RESPONSE	Mobile identity = TMSI-1
19	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
20	->		RRC CONNECTION RELEASE COMPLETE	
21	UE			The UE is switched off or power is removed (see ICS).
22	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'

23	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.2.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receives DETACH REQUEST message with Detach type = 're-attach required', UE shall;

- send DETACH ACCEPT message to SS.

At step9, after UE completed PS detach procedure with Detach type = 're-attach required', UE shall:

- initiate the combined PS attach procedure with an Attach Type of either 'Combined GPRS~~PS~~ ~~/~~ IMSI attach' or ëGPRS attach while IMSI attachedí.

At step13, when the UE receives the paging message for PS domain, UE shall;

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step18, when the UE receives the paging message for CS domain, UE shall:

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.3.2.5 PS detach / rejected / location area not allowed

12.3.2.5.1 Definition

12.3.2.5.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform combined PS attach when in the same location area.

   1.2 delete any RAI or LAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number .

   1.3 store the LAI in the list of the 'forbidden location areas for regional provision of service'.

   1.4 delete any TMSI, LAI and ciphering key sequence number if the UE is IMSI attached and if no RRC connection exists or if the UE is operating in UE operation mode A and an RRC connection exists when the RRC connection is subsequently released.

2) If the network performs a PS detach procedure with the cause 'location area not allowed' the User Equipment shall:

   2.1 perform combined PS attach when a new location area is entered.

   2.2 delete the list of forbidden LAs when power is switched off.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.5.3 Test purpose

To test the behaviour of the UE if the network orders the PS detach procedure with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.3.2.5.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC2 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
All cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No
PS attach attempted automatically by outstanding request Yes/No

Test procedure

The SS orders a PS detach with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell ". Set the cell type of cell C to the "Non-Suitable cell ". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-2
6		->	ATTACH COMPLETE	
7		<-	DETACH REQUEST	Detach type = 're-attach not required' Cause 'Location Area not allowed'
8		->	DETACH ACCEPT	
9	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
10		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
11	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
12		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds
				The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			The UE initiates an attach automatically, by MMI or by AT command.
17	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
18	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
19		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
20	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.

Step	Direction		Message	Comments
	UE	SS		
22				No response from the UE to the request. This is checked for 10 seconds
23		SS		The following messages are sent and shall be received on cell C. Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
24		UE		Cell C is preferred by the UE. Step 25 and 26 are only performed by an UE which will not initiate a PS attach automatically (see ICS)
25 conditional		UE	Registration on CS	See TS34.108 Parameter mobile identity is IMSI.
26 conditional		UE		The UE initiates an attach by MMI or AT command.
27	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -/-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
28	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-6
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-1
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
37	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
38	->		RRC CONNECTION REQUEST	
39	<-		RRC CONNECTION SETUP	
40	->		RRC CONNECTION SETUP COMPLETE	
41	->		SERVICE REQUEST	service type = "paging response"
42	<-		RRC CONNECTION RELEASE	
43	->		RRC CONNECTION RELEASE COMPLETE	
44		UE		The UE is switched off or power is removed (see ICS).
45	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ -/ IMSI detach'
45a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B.

Step	Direction		Message	Comments
	UE	SS		
46	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note) Cell B is preferred by the UE.
47	UE			The UE is powered up or switched on and initiates an attach (see ICS). Step 48 is only performed for non-auto attach UE.
48	UE		Registration on CS	See TS34.108 Parameter mobile identity is TMSI-1
49	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
50	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-6 TMSI status = valid TMSI available or IE not present
51	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-7
52	->		ATTACH COMPLETE	
53	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
54	->		RRC CONNECTION REQUEST	
55	<-		RRC CONNECTION SETUP	
56	->		RRC CONNECTION SETUP COMPLETE	
57	->		PAGING RESPONSE	Mobile identity = TMSI-2
58	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
59	->		RRC CONNECTION RELEASE COMPLETE	
60	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
61	->		RRC CONNECTION REQUEST	
62	<-		RRC CONNECTION SETUP	
63	->		RRC CONNECTION SETUP COMPLETE	
64	->		SERVICE REQUEST	service type = "paging response"
65	<-		RRC CONNECTION RELEASE	
66	->		RRC CONNECTION RELEASE COMPLETE	
67	UE			The UE is switched off or power is removed (see ICS).
68	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS -~~/ IMSI detach'
69	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.3.2.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receive the DETACH REQUEST message (Detach type = 're-attach not required', Cause = 'Location Area not allowed') from SS, UE shall:

- send the DETACH ACCEPT message.

UE shall perform the following action depending on UE location.

1) UE is in the same location area.

At step9 and 18, UE shall:

- not perform location updating procedure.

At step11 and 20, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 22, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step17, UE shall;

- not perform PS attach procedure.

2) UE is in the new location area.

At step27, UE shall;

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step41, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step50, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence

At step57, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step64, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.3.2.6 PS detach / rejected / No Suitable Cells In Location Area

12.3.2.6.1 Definition

12.3.2.6.2 Conformance requirement

1. If the network performs a PS detach procedure with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

1.1 delete the stored LAI, CKSN, TMSI, RAI, PS-CKSN, P-TMSI and P-TMSI signature.

1.2 store the LA in the 'forbidden location areas for roaming'.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.6.3 Test purpose

To test the behaviour of the UE if the network sends the DETACH REQUEST message with the cause 'No Suitable Cells In Location Area'.

12.3.2.6.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode I.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS sends a DETACH REQUEST message with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall not perform combined PS attach while in the same location area on the same PLMN. The SS checks that the UE shall perform PS attach when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		DETACH REQUEST	Detach type = 're-attach not required' Cause 'No Suitable Cells In Location Area'
7	->		DETACH ACCEPT	
				The following message are sent and shall be received on cell B.
8	UE			The UE initiates an attach automatically, by MMI or by AT command.
9	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
10	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-□
11	->		ATTACH COMPLETE	
12	UE			The UE is switched off or power is removed (see ICS).
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
14	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.3.2.6.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the PS attach procedure.

12.3.2.7 PS detach / rejected / Roaming not allowed in this location area

12.3.2.7.1 Definition

12.3.2.7.2 Conformance requirement

1) If the network performs a PS detach procedure with the cause 'Roaming ~~area~~ not allowed in this location area' the User Equipment shall:

   1.1 delete any RAI, P-TMSI, P-TMSI signature and PS ciphering key sequence number.

   1.2 set the GPRS update status to GU3 ROAMING NOT ALLOWED.

   1.3 reset the attach attempt counter.

   1.4 store the LAI in the list of "forbidden location areas for roaming".

   1.5 perform a PLMN selection.

2) If the UE is IMSI attached via MM procedures, the UE shall in addition:

   2.1 delete any TMSI, LAI and ciphering key sequence number.

   2.2 reset the location update attempt counter.

Reference

3GPP TS 24.008 clauses 4.7.4.2.

12.3.2.7.3 Test purpose

To test the behaviour of the UE if the network orders the PS detach procedure with the cause ' Roaming ~~area~~ not allowed in this location area '.

12.3.2.7.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC2/MNC1/LAC1/RAC2 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC2 (RAI-7, Not HPLMN), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
All cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS orders a PS detach with the cause value ' Roaming ~~area~~ not allowed in this location area '. The SS checks that the UE does not perform combined PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off. CS services are not possible unless an IMSI attach procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-2
6		->	ATTACH COMPLETE	
7		<-	DETACH REQUEST	Detach type = 're-attach not required' Cause 'Roaming not allowed in this location area '
8		->	DETACH ACCEPT	
9	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
10		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
11	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
12		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	UE			No response from the UE to the request. This is checked for 10 seconds
		SS		The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
15	UE			Cell B is preferred by the UE.
16	UE			The UE initiates an attach automatically, by MMI or by AT command.
17	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)
18	UE			No LOCATION UPDATING REQ with type 'IMSI attach' is sent to the SS (SS waits 30 seconds).
19		<-	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
20	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.

Step	Direction		Message	Comments
	UE	SS		
22				No response from the UE to the request. This is checked for 10 seconds
				The following messages are sent and shall be received on cell C.
23		SS		Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
24	UE			Cell C is preferred by the UE. Step 25 is only performed for non-auto attach UE.
25	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI.
26	UE			The UE initiates an attach automatically (See ICS), by MMI or AT command.
27	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
28	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-6
29	->		ATTACH COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
31	->		RRC CONNECTION REQUEST	
32	<-		RRC CONNECTION SETUP	
33	->		RRC CONNECTION SETUP COMPLETE	
34	->		PAGING RESPONSE	Mobile identity = TMSI-1
35	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
36	->		RRC CONNECTION RELEASE COMPLETE	
37	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
38	->		RRC CONNECTION REQUEST	
39	<-		RRC CONNECTION SETUP	
40	->		RRC CONNECTION SETUP COMPLETE	
41	->		SERVICE REQUEST	service type = "paging response"
42	<-		RRC CONNECTION RELEASE	
43	->		RRC CONNECTION RELEASE COMPLETE	
44	UE			The UE is switched off or power is removed (see ICS).
45	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined ~~PS~~ GPRS / IMSI detach'
45a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B.
46	UE			Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
47	UE			Cell B is preferred by the UE. The UE is powered up or switched on and initiates an attach (see ICS).

Step	Direction		Message	Comments
	UE	SS		
				Step 48 is only performed for non-auto attach UE.
48	UE		Registration on CS	See TS34.108 Parameter mobile identity is TMSI-1
49	UE			UE initiates an attach automatically (see ICS), by MMI or AT commands.
50	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-6 TMSI status = valid TMSI available or IE not present
51	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-7
52	->		ATTACH COMPLETE	
53	<-		PAGING TYPE1	Mobile identity = TMSI-2 Paging order is for CS services.
54	->		RRC CONNECTION REQUEST	
55	<-		RRC CONNECTION SETUP	
56	->		RRC CONNECTION SETUP COMPLETE	
57	->		PAGING RESPONSE	Mobile identity = TMSI-2
58	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
59	->		RRC CONNECTION RELEASE COMPLETE	
60	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
61	->		RRC CONNECTION REQUEST	
62	<-		RRC CONNECTION SETUP	
63	->		RRC CONNECTION SETUP COMPLETE	
64	->		SERVICE REQUEST	service type = "paging response"
65	<-		RRC CONNECTION RELEASE	
66	->		RRC CONNECTION RELEASE COMPLETE	
67	UE			The UE is switched off or power is removed (see ICS).
68	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
69	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.3.2.7.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the UE receive the DETACH REQUEST message (Detach type = 're-attach not required', Cause = ' Roaming not allowed in this location area') from SS, UE shall:

- send the DETACH ACCEPT message.

UE shall perform the following action depending on UE location.

1) UE is in the same location area.

At step9 and 18, UE shall:

- not perform location updating procedure.

At step11 and 20, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for PS domain.

At step13 and 22, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step17, UE shall;

- not perform PS attach procedure.

2) UE is in the new location area.

At step27, UE shall;

- perform the combined PS attach procedure.

At step34, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step41, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step50, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence

At step57, when the UE receives the paging message for CS domain with Mobile identity = IMSI, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step64, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.3.2.8 PS detach / rejected / PS services not allowed in this PLMN

12.3.2.8.1 Definition

12.3.2.8.2 Conformance requirement

If the network performs a PS detach procedure with the cause ' ~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN ', the UE:

1. shall delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored, shall set the PS update status to GU3 ROAMING NOT ALLOWED (and shall store it according to section 4.1.3.2) and shall change to state GMM-DEREGISTERED.

2. shall store the PLMN identity in the "forbidden PLMNs for PS service" list.

If the network performs a PS detach procedure with the cause ' ~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN ', the UE operating in UE operation mode A in network operation mode I:

1. shall set the timer T3212 to its initial value and restart it, if it is not already running.
2. is still IMSI attached for CS services in the network.

Reference(s):

3GPP TS 24.008 subclause 4.7.4.2.2

12.3.2.8.3 Test purpose

Test purpose for Test procedure1

To test the behaviour of the UE if the network initiates a PS detach procedure with the cause "~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN" (for Conformance requirement1, 2).

Test purpose for Test procedure2

To test the behaviour of the UE operating in UE operation mode A in network operation mode I if the network initiates a PS detach procedure with the cause "~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN" (for Conformance requirement3, 4).

12.3.2.8.4 Method of test

12.3.2.8.4.1 Test procedure1

Initial conditions

System Simulator:

Two cells cellA in MCC1/MNC1/LAC1/RAC1, cellB in MCC1/MNC2/LAC2/RAC1.
Both two cells are operating in network operation mode II.
The PLMN contains Cell B is equivalent to the PLMN that contains Cell A.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statement(s)

- Support of PS service Yes/No.
- UE operation mode A Yes/No
- UE operation mode C Yes/No (only if mode A not supported)..
- Switch off on button Yes/No.
- Automatic PS attach procedure at switch on or power on Yes/No.

Test procedure

Two cells are configured.

Cell A transmits with higher power so that the UE attempts an attach procedure to cell A.

The UE initiates a PS attach procedure.

The SS sends a PS detach with the cause "~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN".

The SS verifies that the UE does not perform a periodic ROUTING AREA UPDATE procedure in this PLMN after the timer T3312 is expired and does not respond a paging for PS services.

Cell B transmits with high power so that the UE attempts an attach procedure to cell B.

The UE initiates a PS attach procedure.

The SS verifies that the UE performs a periodic ROUTING AREA UPDATE procedure.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A or C (see ICS).
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the " Suitable neighbour cell "
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
5	<-		AUTHENTICATION AND CIPHERING REQUEST	
6	->		AUTHENTICATION AND CIPHERING RESPONSE	
7		SS		The SS starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = ' ~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Equivalent PLMNs = MCC1,MNC2 T3312 = 6minutes
9	->		ATTACH COMPLETE	
10	<-		DETACH REQUEST	Detach Type = 're-attach not required' Cause = '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'
11	->		DETACH ACCEPT	
12		SS		The SS releases the RRC connection.
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	UE			The SS verifies that the UE does not attempt to access the network for T3312.
				The following messages are sent and shall be received on cell B.
16		SS		Set the cell type of cell A to the "Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell " (see note)
17				Cell B is preferred by the UE. Step 18 is only performed for non-auto attach UE.
18			Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
19				The UE initiates an attach automatically (See ICS), by MMI or AT command.
20	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
21	<-		AUTHENTICATION AND CIPHERING REQUEST	
22	->		AUTHENTICATION AND CIPHERING RESPONSE	
23		SS		The SS starts integrity protection.

24	<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-9 Equivalent PLMNs = MCC1,MNC1 T3312 = 6minutes
25	->	ATTACH COMPLETE	
26	SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
27	->	ROUTING AREA UPDATING REQUEST	Update type = 'Periodic updating' P-TMSI-2 signature Routing area identity = RAI-9
28	<-	ROUTING AREA UPDATING ACCEPT	No new mobile identity assigned. P-TMSI and TMSI not included. Update result = 'RA updated' Equivalent PLMNs = MCC1,MNC1
29	UE		The UE is switched off or power is removed (see ICS).
30	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off,
31	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.3.2.8.4.2 Test procedure2

Initial conditions

System Simulator:

One cell is operating in network operation mode I: MCC1/MNC1/LAC1/RAC1.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1 and RAI-1.

Related ICS/IXIT statement(s)

- Support of PS service Yes/No.
- UE operation mode A Yes/No
- Switch off on button Yes/No.
- Automatic PS attach procedure at switch on or power on Yes/No.

Test procedure

One cell is configured.

The UE initiates a combined attach procedure.

The SS sends a PS detach with the cause "~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN".

The SS verifies that the UE performs a periodic location area updating procedure after the timer T3212 is expired.

The SS verifies that the UE responds a paging for CS services.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4	<-		AUTHENTICATION AND CIPHERING REQUEST	
5	->		AUTHENTICATION AND CIPHERING RESPONSE	
6	SS			The SS starts integrity protection.
7	<-		ATTACH ACCEPT	Attach result = '~~-~~Combined GPRS/IMSI attached~~Combined PS/IMSI attached ~~' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
8	->		ATTACH COMPLETE	
9	<-		DETACH REQUEST	Detach Type = 're-attach not required' Cause = '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'
10	->		DETACH ACCEPT	
11				The SS releases the RRC connection
12	SS			The SS waits for the UE to expiry the timer T3212.
13	UE		Registration on CS	The UE performs a location update procedure. See TS 34.108 Mobile identity = IMSI
14	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call"
15	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
16	->		PAGING RESPONSE	Mobile identity = IMSI
17				The SS releases the RRC connection
18	UE			The UE is switched off or power is removed (see ICS).
19	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off'
20	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.3.2.8.5 Test Requirement

12.3.2.8.5.1 Test Requirement for Test procedure1

At step4, when the UE is powered up or switched on, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step11, when the UE receives DETACH REQUEST message with the cause "~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN", the UE shall:

- send DETACH ACCEPT message.

At step13, when the UE receives the paging for PS services with "Mobile identity = P-TMSI-2", the UE shall;

- not respond to the paging for PS services.

At step14, when the time T3312 is expired, the UE shall:

- not attempt to access the network.

At step20, when the UE enters the different cell with the equivalent PLMN, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step27, when the time T3312 is expired, the UE shall:

- initiate the periodic routing area updating procedure with the information elements specified in the above Expected Sequence.

12.3.2.8.5.2 Test Requirement for Test procedure2

At step3, when the UE is powered up or switched on, the UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step10, when the UE receives DETACH REQUEST message with cause "~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN ", the UE shall:

- send DETACH ACCEPT message.

At step12, while the SS wait for the timer T3312 to expire, the UE shall:

- not perform the periodic location area updating procedure.

At step13, when the T3212 timer is expired, the UE shall:

- initiate the periodic location area updating procedure.

At step16, when the UE receives the paging for CS services with "Mobile identity = IMSI", the UE shall;

- respond to the paging for CS services by sending the PAGING RESPONSE message.

12.4 Routing area updating procedure

This procedure is used to update the actual routing area of an UE in the network.

12.4.1 Normal routing area updating

The routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A or C that are IMSI attached for PS services only.

12.4.1.1a Routing area updating / accepted

12.4.1.1a.1 Definition

12.4.1.1a.2 Conformance requirement

1) If the network accepts the routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

2) If the network accepts the routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

3) The routing area updating procedure shall also be used by a UE which is attached for PS services if a new PLMN is entered.

Reference

3GPP TS 24.008 clause 4.7.5, 4.7.5.1.

12.4.1.1a.3 Test purpose

To test the behaviour of the UE if the network accepts the routing area updating procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is reallocated.

2) Old P-TMSI / P-TMSI signature is not changed.

To test the behaviour of the UE if the UE enters the new PLMN.

12.4.1.1a.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC2 (RAI-7).
All three cells are operating in network operation mode II.
The PLMN contains cell C is equivalent to the PLMN that contains cell A.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. The UE will not answer signalling addressed to the old P-TMSI.

2) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS accepts the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message without any P-TMSI. Further communication UE - SS is performed by the P-TMSI.

3) The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
2		UE		The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 32.
3		UE		The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Equivalent PLMN: MCC = 2, MNC = 1
6	->		ATTACH COMPLETE	
6a		SS		The SS releases the RRC connection.
7		SS		The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
8a		SS		The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
9	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 Equivalent PLMNs = MCC2,MNC1
10	->		ROUTING AREA UPDATE COMPLETE	
11			Void	
11b			Void	
11c		SS		The SS releases the RRC connection.
11d	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
11e		SS		SS verifies that the UE transmits an RRC CONNECTION REQUEST message. SS will reject this request. The IE "Establishment cause" is not checked.
12	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
13		UE		No response from the UE to the request. This is checked for 10 seconds.
14		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
15		UE		Cell A is preferred by the UE.
15a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Routing area identity = RAI-4
16a		SS		The SS starts integrity protection.
17	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-1 signature Routing area identity = RAI-1 Equivalent PLMN: MCC = 2, MNC = 1
17a		SS		The SS releases the RRC connection.
18	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
18a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call"
18b			Void	
18c			Void	
19	->		SERVICE REQUEST	service type = "paging response"
19aa		SS		The SS starts integrity protection.
19a		SS		The SS releases the RRC connection.
20		SS		The following messages are sent and shall be received on cell C. Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
21		UE		Cell C is preferred by the UE.
21a		UE	Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.

Step	Direction		Message	Comments
	UE	SS		
22		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
23		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Routing area identity = RAI-1
24		SS		The SS starts integrity protection.
25		<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-3 P-TMSI-3 signature Routing area identity = RAI-7 Equivalent PLMNs = MCC1,MNC1
26		->	ROUTING AREA UPDATE COMPLETE	
27		SS		The SS releases the RRC connection.
28	UE			The UE is switched off or power is removed (see ICS).
29		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
30		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
31		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
32	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 3 to step 31.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.1a.5 Test requirements

At step 3a, 7a, 15a and 22 the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 18a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating Interactive Call".

At step 29 the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step13, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- not respond to the paging message for PS domain.

At step16, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step19, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-1, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step23, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

12.4.1.1b Routing area updating / accepted / Signalling connection re-establishment

12.4.1.1b.1 Definition

12.4.1.1b.2 Conformance requirement

When the UE receives an indication from the lower layers that the RRC connection has been released with cause "Directed signalling connection re-establishment", then the UE shall enter PMM-IDLE mode and initiate immediately a normal routing area update procedure (the use of normal or combined procedure depends on the network operation mode in the current serving cell) regardless whether the routing area has been changed since the last update or not.

Reference

3GPP TS 24.008 clause 4.7.2.5, 4.7.5.1

12.4.1.1b.3 Test purpose

To test the behaviour of the UE if the UE receives a RRC CONNECTION RELEASE message with cause = "Directed signalling connection re-establishment".

12.4.1.1b.4 Method of test

Initial condition

System Simulator:

One cell(Cell A) in MCC1/MNC1/LAC1/RAC1 (RAI-1) operating in network operation mode II. ATT flag is set to 0.

User Equipment:

The UE has a valid TMSI, P-TMSI-1 and RAI-1

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

a) The UE initiates a Service request procedure in order to establish the PS signalling connection for the upper layer signalling.

b) After the Service request procedure is complete, the SS sends the RRC CONNECTION RELEASE message with cause = "Directed signalling connection re-establishment" to the UE.

c) After the UE release the RRC connection, the UE initiate immediately a normal routing area update procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = '~~ GPRS PS~~ attach' Mobile identity = P-TMSI1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~ PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling",
8	<-		AUTHENTICATION AND CIPHERING REQUEST	
9	->		AUTHENTICATION AND CIPHERING RESPONSE	
10	SS			The SS starts integrity protection.
11	SS			The SS releases the RRC connection, using Release cause=Directed Signalling Connection Re-establishment
12			Void	
13	SS			SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Call re-establishment".
14			Void	
15			Void	
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' (FOR bit not checked) P-TMSI-1 signature Routing area identity = RAI-1
17	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
18	->		ROUTING AREA UPDATE COMPLETE	
19	UE			The UE is switched off or power is removed (see ICS).
20	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
21	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.4.1.1b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step16, UE shall;

- initiate the routing area updating procedure whether the routing area has been changed since the last update or not.

12.4.1.1c Void

12.4.1.2 Routing area updating / rejected / IMSI invalid / illegal ME

12.4.1.2.1 Definition

12.4.1.2.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall consider USIM invalid for PS services until power is switched off or USIM is removed.

2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'Illegal ME', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Illegal ME'.

12.4.1.2.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All three cells are operating in network operation mode II (in case of UE operation mode A)
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Illegal ME'. The SS checks that the UE does not perform PS attach in the same or another PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a			Void	
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned.P-TMSI and P-TMSI signature not included. Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-1
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Routing area identity = RAI-1
9	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Illegal ME'
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell C.
12	SS			Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell A to the ìNon-Suitable cellî. Set the cell type of cell C to the "Serving cell". (see note)
13	UE			Cell C is preferred by the UE.
14	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
15	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
16	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
16a				Step 16b is only performed by UE in operation mode A

16b	UE	Registration on CS	See TS 34.108 Parameter mobile identity is IMSI.
17	->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
17a	<-	AUTHENTICATION AND CIPHERING REQUEST	
17b	->	AUTHENTICATION AND CIPHERING RESPONSE	
17c	SS		The SS starts integrity protection.
18	<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
19	->	ATTACH COMPLETE	
20	UE		The UE is switched off or power is removed (see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.1.2.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step11, after the routing area updating procedure is rejected with GMM cause = 'Illegal ME', UE shall;

- not respond to the paging message for PS domain.

At step14, UE shall,

- not initiate PS attach procedure.

At step17, after the UE is powered up or USIM is replaced, UE shall;

- initiate the PS attach procedure.

12.4.1.3 Routing area updating / rejected / UE identity cannot be derived by the network

12.4.1.3.1 Definition

12.4.1.3.2 Conformance requirement

If the network rejects a routing area updating procedure from the User Equipment with the cause '~~UE~~ 'MS identity cannot be derived by the network', the User Equipment shall delete the stored RAI, PS-CKSN, P-TMSI and P-TMSI signature.

Depending on the manufacturer the UE may or may not perform a PS attach procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.3.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause ~~'UE~~ 'MS identity cannot be derived by the network'.

12.4.1.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Automatic attach procedure when UE identity cannot be derived by the network Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a normal routing area updating with the cause value ~~'UE~~ 'MS identity cannot be derived by the network'. The UE detach locally. A new PS attach may be performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
9		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
10		<-	ROUTING AREA UPDATE REJECT	GMM cause = '~~UE~~ 'MS identity cannot be derived by the network'
11	UE			If an automatic attach procedure by the UE is not possible when the UE identity cannot be derived by the network (see ICS) goto step 19.
12	UE			An Automatic PS attach procedure is initiated (see ICS).
13		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
13a		<-	AUTHENTICATION AND CIPHERING REQUEST	
13b		->	AUTHENTICATION AND CIPHERING RESPONSE	
13c		SS		The SS starts integrity protection.
14		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
15		->	ATTACH COMPLETE	
16	UE			The UE is switched off or power is removed (see ICS).
17		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'

Step	Direction		Message	Comments
	UE	SS		
18	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
20	UE			No response from the UE to the request, as the UE has detached locally. This is checked for 10 seconds.
NOTE: The definitions for "Non-Suitable cell", Suitable neighbour cell and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the implementation of the UE.

Case 1) UE supports an Automatic PS attach procedure.

At step13, UE shall;

- initiate the PS attach procedure.

Case 2) UE does not support an Automatic PS attach procedure.

At step20, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

12.4.1.4a Routing area updating / rejected / location area not allowed

12.4.1.4a.1 Definition

12.4.1.4a.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment shall:

   1.1 not perform PS attach when in the same location area.

   1.2 delete the stored RAI, PS-CKSN, P-TMSI, P-TMSI signature and TMSI, LAI and ciphering key sequence number.

   1.3 store the LA in the 'forbidden location areas for regional provision of service'.

   1.4 not delete the list of "equivalent PLMNs".

   1.5 perform a cell selection.

2) If the network rejects a routing area updating procedure from the User Equipment with the cause 'location area not allowed' the User Equipment:

2.1 may perform routing area update when a new location area is entered.

2.2 shall delete the list of forbidden LAs after switch off (power off).

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4a.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause 'Location Area not allowed'.

To test that the UE deletes the list of forbidden LAs when power is switched off.

12.4.1.4a.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) , cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell D in MCC2/MNC1/LAC2/RAC1(RAI-6).
All four cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

The PLMN contains Cell D is equivalent to the PLMN that contains Cell C.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Location Area not allowed'. The SS checks that the UE does not perform PS attach while in the location area, performs PS attach when a new location area is entered and deletes the list of forbidden LAs when switched off.

Different types of UE may use different methods to periodically clear the list of forbidden location areas (e.g. every day at 12am). If the list is cleared while the test is being run, it may be necessary to re-run the test.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell C.
1		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 33.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell C is preferred by the UE.
3a			Void	
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
6	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell B to the "Serving cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
8		SS		Cell B is preferred by the UE.
8a				The following step is only performed for UE Operation Mode A.
8b	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Routing area identity = RAI-3
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Location Area not allowed'
11	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
12	UE			No response from the UE to the request. This is checked for 10 seconds.
		SS		The following messages are sent and shall be received on cell A.
13		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
13a	UE			The UE performs cell selection.
14	UE			Cell A is preferred by the UE.
15	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds)

Step	Direction		Message	Comments
	UE	SS		
16		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
16a		UE		The UE performs cell selection.
17		UE		Cell D is preferred by the UE. The following messages are sent and shall be received on cell D.
17a				The following step is only performed for UE Operation Mode A.
17b		UE	Registration on CS	See TS34.108 Parameter mobile identity is IMSI
		UE		The UE initiates a PS attach either automatically or manually (see ICS).
18	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
19	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
20	->		ATTACH COMPLETE	
21		UE		If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
22	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
22a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
23		UE		The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
24	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-2 Routing area identity = RAI-3
24a	<-		AUTHENTICATION AND CIPHERING REQUEST	
24b	->		AUTHENTICATION AND CIPHERING RESPONSE	
24c		SS		The SS starts integrity protection.
25	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-6 Equivalent PLMNs = MCC1,MNC1
26	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell A.
27				Set the cell type of cell A to the "Serving cell". Set the cell type of cell D to the "Non-Suitable cell". (see note)
28				Cell A is preferred by the UE.
28a				The following step is only performed for UE Operation Mode A.
28b		UE	Registration on CS	See TS34.108 Parameter mobile identity is IMSI
29	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Routing area identity = RAI-3

Step	Direction		Message	Comments
	UE	SS		
30	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned.P-TMSI and P-TMSI signature not included.Update result = 'RA updated' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
31	UE			The UE is switched off or power is removed (see ICS).
32	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
32a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
33	SS			The SS is set in network operation mode II.
34	UE			The UE is set in UE operation mode A (see ICS), cell A is switched off and the test is repeated from step 3 to step 32.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.4a.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step12, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step12 and 15, when in the same location area, UE shall

- not perform PS attach procedure.

At step18, when a new location area is entered, UE shall

- perform the PS attach procedure.

At step24, when the USIM is replaced , UE shall;

- perform the PS attach procedure.

At step29, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

12.4.1.4b Routing area updating / rejected / No Suitable Cells In Location Area

12.4.1.4b.1 Definition

12.4.1.4b.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

1.1 store the LA identity in the 'forbidden location areas for roaming'.

1.2 search for a suitable cell in a different location area on the same PLMN.

1.3 not delete equivalent PLMNs list.

1.4 not delete the MM and GMM contexts

Reference

3GPP TS 24.008 clauses 4.7.5.1.

12.4.1.4b.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.1.4b.4 Method of test

Initial condition

System Simulator:

Four cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4),

All four cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

The PLMNs of cells A, B, C and D are all equivalent.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

ii) Cell D will be mapped to Cell 3 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform Routing Area Update procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following message are sent and shall be received on cell D.
1		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Serving cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell D is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 Equivalent PLMNs = MCC2,MNC1
5	->		ATTACH COMPLETE	
6		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C Cell A is preferred by the UE.
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Routing area identity = RAI-4 Mobile identity = P-TMSI-1
8	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area'
				The following message are sent and shall be received on cell B.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Routing area identity = RAI-4 Mobile identity = P-TMSI-1
				The UE shall initiate a location area updating procedure between steps 8 and 12.
10	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
11	->		ROUTING AREA UPDATE COMPLETE	
12	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'

13	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.1.4b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, UE shall;

- initiate the routing area updating procedure.

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.4.1.4c Routing area updating / rejected / PS services not allowed in this PLMN

12.4.1.4c.1 Definition

12.4.1.4c.2 Conformance requirement

If the network rejects a routing area updating procedure from the User Equipment with the cause 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- shall set the PS update status to GU3 ROAMING NOT ALLOWED.
- store the PLMN identity in the "forbidden PLMNs for PS service" list.
- not delete the equivalent PLMN list.

UE shall perform the following actions depending on the update type, UE operation mode and network operation mode.

1) UE is in UE operation mode C

   UE shall perform a PLMN selection instead of a cell selection.

2) UE is in UE operation mode A, update type = periodic updating and Network is in network operation mode I

   UE shall set the timer T3212 to its initial value and restart it, if it is not already running.

3) UE is in UE operation mode A and Network is in network operation mode II.

   UE shall be still IMSI attached for CS services in the network.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.4c.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'.

12.4.1.4c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2).
All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1, RAI-1.

The UE is in UE operation mode C.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure 1

The SS rejects a routing area updating with the cause value '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'. The SS checks that the UE performs PLMN selection.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned.P-TMSI and P-TMSI signature not included. Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Routing area identity = RAI-1
9		<-	ROUTING AREA UPDATE REJECT	GMM cause = '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'
10		<-	PAGING TYPE1	Mobile identity = P-TMSI-1 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.
11	UE			No response from the UE to the request. This is checked for 10 seconds.
12	SS			Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell A to the "Serving cell". (see note)
13	UE			The UE performs PLMN selection.
14	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
15	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
17		->	ATTACH REQUEST	~~Update~~ Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
17a		<-	AUTHENTICATION AND CIPHERING REQUEST	
17b		->	AUTHENTICATION AND CIPHERING RESPONSE	
17c	SS			The SS starts integrity protection.

18	<-	ATTACH ACCEPT	~~Update~~ Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2 Equivalent PLMNs = MCC1,MNC1
19	->	ATTACH COMPLETE	
20	UE		The UE is switched off or power is removed (see ICS).
21	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

Test procedure2

Initial condition

System Simulator:

One cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) operating in network operation mode I.

T3212 is set to 6 minutes.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

The UE is in UE operation mode A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure with identity P-TMSI. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. A routing area updating procedure is performed at T3312 timeout. The SS rejects a routing area updating with the cause value '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'. The UE sets the timer T3212 to its initial value and restart it, if it is not already running.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS/IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
5b	SS			The SS verifies that the time between the attach and the periodic RA updating is T3312
6	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' P-TMSI-2 signature Routing area identity = RAI-1
7	<-		ROUTING AREA UPDATE REJECT	GMM cause = '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'
8	UE		Registration on CS	See TS 34.108 Location Update Procedure is initiated from the UE when T3212 is expired.
9	->		void	
10	<-		void	
11	UE			The UE is switched off or power is removed (see ICS).
12	->		DETACH REQUEST	Message not sent if power is removDetach type ñ ępower switched off, IMSI detachíed.
13	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.4c.5 Test requirements

Test requirement for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step11, after the routing area updating procedure is rejected with GMM cause = 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~', UE shall;

- not respond to the paging message for PS domain.

At step13, UE shall,

- initiate PLMN selection.

At step17, UE shall;

- initiate the PS attach procedure.

Test requirement for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step7, after the routing area updating procedure is rejected with GMM cause = 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~', UE shall;

- set the timer T3212 to its initial value and restart it.

At step8, UE shall,

- initiate the periodic location area updating procedure when the timer T3212 is expired.

12.4.1.4d Routing area updating / rejected / Roaming not allowed in this location area

12.4.1.4d.1 Definition

12.4.1.4d.2 Conformance requirement

1) If the network rejects a routing area updating procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment:

   1.1 shall not perform PS attach when in the same location area.

   1.2 shall store the LA in the 'forbidden location areas for roaming'.

   1.3 shall perform a routing area updating when entering into a new location area if the LAI or the PLMN identity is not contained in any of the lists "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs" and the current status is different from "IDLE NO IMSI".

2) The User Equipment shall erase the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

References

3GPP TS 24.008 clause 4.7.5.1.4.

3GPP TS 23.122 clause 4.5.2.

3GPP TS 24.008 clause 4.4.1.

12.4.1.4d.3 Test purpose

Test purpose1

To test that on receipt of a rejection using the 'Roaming not allowed in this location area' cause code, the UE ceases trying a routing area updating procedure on that location area. Successful routing area updating procedure is possible in other location areas.

Test purpose2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

12.4.1.4d.4 Method of test

12.4.1.4d.4.1 Test procedure1

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Roaming not allowed in this location area'. A new attempt for a PS attach is not possible. Successful PS attach procedure is performed in another location area. The UE is moved back to the 1st location area. A routing area updating shall not be performed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI SS allocates Mobile identity = TMSI-1.
4	->		ATTACH REQUEST	Attach type = '~~-~~GPRS~~PS~~ attach ' Mobile identity =IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the " Non-suitable cell ". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-2
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this location area'
11	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
				The following messages are sent and shall be received on cell A.
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
18	UE			Cell A is preferred by the UE.
19	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.

Step	Direction		Message	Comments
	UE	SS		
20			Void	
21	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Mobile identity = P-TMSI-2
21a	<-		AUTHENTICATION AND CIPHERING REQUEST	
21b	->		AUTHENTICATION AND CIPHERING RESPONSE	
21c		SS		The SS starts integrity protection.
22	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
23	->		ROUTING AREA UPDATE COMPLETE	
24	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
25			Void	
26			Void	
27			Void	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29		SS		The SS releases the RRC connection.
30			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
32			Void	
33			Void	
34			Void	
35	->		SERVICE REQUEST	service type = "paging response"
36		SS		The SS releases the RRC connection.
37			Void	
38		SS		The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
39		UE		No ROUTING AREA UPDATE REQUEST sent to SS (SS waits 30 seconds).
40	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
41		UE		No response from the UE to the request. This is checked for 10 seconds.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

12.4.1.4d.4.2 Test procedure2

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6). Both cells are operating in network operation mode II.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a routing area updating with the cause value 'Roaming not allowed in this location area'. The UE is switched off for 10 seconds and switched on again. The SS checks that a PS attach is possible on the cell on which the previous routing area updating had been rejected.

If USIM removal is possible without switching off:
The SS rejects a routing area updating with the cause value 'Roaming not allowed in this location area'. The USIM is removed and inserted in the UE. The SS checks that a PS attach procedure and routing area updating procedure is possible on the cell on which the routing area updating had previously been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	UE		Registration on CS	See TS34.108 Parameter mobile identity is IMSI SS allocates Mobile identity = TMSI-1.
4	->		ATTACH REQUEST	Attach type = '~~-~~GPRS~~PS~~ attach ' Mobile identity =IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE. Parameter mobile identity is TMSI-1.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-2
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this location area'
11	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
18	UE			The UE gets the USIM replaced, is powered up or switched on.
19	UE		Registration on CS	See TS 34.108 Location Update Procedure initiated from the UE.
20	UE			The UE initiates an attach automatically (see ICS) by MMI or AT command.

Step	Direction		Message	Comments
	UE	SS		
21	->		ATTACH REQUEST	Attach type = '~~GPRS~~PS attach ' Mobile identity =P-TMSI-2
22a	<-		AUTHENTICATION AND CIPHERING REQUEST	
22b	->		AUTHENTICATION AND CIPHERING RESPONSE	
22c		SS		The SS starts integrity protection.
22	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-6 Mobile identity = TMSI-1
23	->		ATTACH COMPLETE	
24	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
25			Void	
26			Void	
27			Void	
28	->		PAGING RESPONSE	Mobile identity = TMSI-1
29		SS		The SS releases the RRC connection.
30			Void	
31	<-		PAGING TYPE1	Mobile identity = P-TMSI-1
32			Void	
33			Void	
34			Void	
35	->		SERVICE REQUEST	service type = "paging response"
36		SS		The SS releases the RRC connection.
37			Void	
38	UE			The UE is switched off or power is removed (see ICS).
39	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
40		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.4d.5 Test requirements

Test requirements for Test procedure1

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the routing area update procedure with the information elements specified above Expected Sequence

At step12, when the SS rejects the routing area update procedure with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not initiate a PS attach procedure.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step21, UE shall:

- initiate the routing area update procedure.

At step28, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step41, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

Test requirements for Test procedure2

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area update procedure with the information elements specified above Expected Sequence.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step21, UE shall:

- initiate the PS attach procedure.

At step28, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step35, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.4.1.5 Routing area updating / abnormal cases / attempt counter check / miscellaneous reject causes

12.4.1.5.1 Definition

12.4.1.5.2 Conformance requirement

When a routing area updating procedure is rejected with the attempt counter less than five, the UE shall repeat the routing area updating procedure after T3311 timeout.

When a T3311 timeout has occurred during a routing area updating procedure with the attempt counter five, the UE shall start timer T3302.

When the T3302 expire, a new routing area updating procedure shall be initiated.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.5.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.1.5.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). The ATT-flag shall indicate that the MS should use IMSI attach/detach procedures.
Both cells are operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (attempt counter zero).

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter one) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter two) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter three) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure (attempt counter four) after T3311 expires.

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE initiates a new routing area updating procedure with attempt counter five (after T3311 expires).

The SS rejects the routing area updating procedure with a GMM cause 'congestion' code.

The UE shall not perform a new successful routing area updating procedure after T3311 seconds.

The UE initiates a routing area updating procedure with attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 12 minutes.

T3311; set to 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2a			Void	
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	UE		Registration on CS	See TS 34.108 This step is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI.
4		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = '~~PS only attached~~GPRS only attached' P-TMSI-2 signature Routing area identity = RAI-1
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7		SS		Cell B is preferred by the UE.
8		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
9		<-	ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
10		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
11		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
12		<-	ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
13		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
14		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
15		<-	ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
16		SS		The SS verifies that the time between the routing area updating requests is 15 seconds
17		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1

Step	Direction		Message	Comments
	UE	SS		
18	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
19	SS			The SS verifies that the time between the routing area updating requests is 15 seconds
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
21	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Congestion'
22	SS			The SS verifies that the UE does not attempt to attach for 10 minutes .
23	SS			The SS shall release the PS signalling connection.
23a			Void	
24	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
25	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2 P-TMSI-3 signature Routing area identity = RAI-4
26	->		ROUTING AREA UPDATE COMPLETE	
27	UE			The UE is switched off or power is removed (see ICS).
28	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach' An IMSI Detach must be performed for an UE in Operation Mode A either before or after the PS Detach
29	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.5.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- perform the routing area updating procedure.

UE shall perform the following actions depending on the conditions described below.

Case 1) At step11, 14, 17 and 20, a routing area updating procedure is rejected from SS with the attempt counter less than five,

UE shall:

- repeat the routing area updating procedure after T3311 timeout

Case2) At step22 a routing area updating procedure is rejected from SS with the attempt counter five

At step22, UE shall:

- not initiate a routing area updating procedure.

Case3) At step24, the T3302 expires

UE shall:

- initiate the new routing area updating procedure

12.4.1.6 Routing area updating / abnormal cases / change of cell into new routing area

12.4.1.6.1 Definition

12.4.1.6.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.6.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.6.4 Method of test

Initial condition

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) and cell C In MCC1/MNC1/LAC1/RAC3 (RAI-5).
All cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 18.
2		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5		<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
6		->	ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8		SS		Cell B is preferred by the UE.
9		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
10		SS		No response to the ROUTING AREA UPDATE REQUEST message is given by the SS
				The following messages are sent and shall be received on cell C.
11		SS		Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
12		SS		Cell C is preferred by the UE.
13		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
14		<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2 P-TMSI-3 signature Routing area identity = RAI-5
15		->	ROUTING AREA UPDATE COMPLETE	
16	UE			The UE is switched off or power is removed (see ICS).
17		->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'

17a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
18 19	SS UE		The SS is set in network operation mode II. The UE is set in UE operation mode A (see ICS). Set the cell type of cell C to the "Non-Suitable cell".The test is repeated from step 2 to step 17.
NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.1.6.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area update procedure.

At step13, when change of cell into a new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.1.7 Void

12.4.1.8 Routing area updating / abnormal cases / P-TMSI reallocation procedure collision

12.4.1.8.1 Definition

12.4.1.8.2 Conformance requirement

When a P-TMSI REALLOCATION COMMAND message is received by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.8.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No (only if mode C not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a P-TMSI reallocation procedure. The UE shall ignore the P-TMSI reallocation procedure and continue with the routing area updating procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS).
2		SS		The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = IMSI
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
6	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
8		SS		Cell B is preferred by the UE.
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Routing area identity = RAI-1
10	<-		P-TMSI REALLOCATION COMMAND	Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
11	UE			The UE ignores the P-TMSI reallocation command.
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-4
13	->		ROUTING AREA UPDATE COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
16		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.1.8.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the routing area updating procedure.

At step11, when a P-TMSI REALLOCATION COMMAND message is received from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the P-TMSI reallocation procedure.
- continue with the routing area updating procedure.

12.4.2 Combined routing area updating

The combined routing area updating procedure is a GMM procedure used by PS UEs of UE operation mode A that are IMSI attached for PS and non-PS services. In order to use the combined routing area updating procedure, the network must operate in network operation mode I.

12.4.2.1 Combined routing area updating / combined RA/LA accepted

12.4.2.1.1 Definition

12.4.2.1.2 Conformance requirement

1) If the network accepts the combined routing area updating procedure and reallocates a P-TMSI, the UE shall acknowledge the new P-TMSI and continue communication with the new P-TMSI.

2) If the network accepts the combined routing area updating procedure from the UE without reallocation of the old P-TMSI, the UE shall continue communication with the old P-TMSI.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.1.3 Test purpose

To test the behaviour of the UE if the network accepts the combined routing area updating procedure.

The following cases are identified:

1) P-TMSI / P-TMSI signature is reallocated.

2) Old P-TMSI / P-TMSI signature is not changed.

3) Mobile terminating CS call is allowed with IMSI.

4) Mobile terminating CS call is allowed with TMSI.

12.4.2.1.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

1) A combined PS attach procedure is performed. The UE sends a ROUTING AREA UPDATE REQUEST message. The SS reallocates the P-TMSI, unassigns the TMSI and returns ROUTING AREA UPDATE ACCEPT message with a new P-TMSI and IMSI. The UE acknowledge the new P-TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE - SS is performed by the new P-TMSI. For CS calls, the IMSI is used

2) The UE is CS paged in order to verify that the IMSI is used for CS calls.

3) A combined PS attach procedure is performed. The UE sends an ROUTING AREA UPDATE REQUEST message. The SS accepts the P-TMSI signature and returns ROUTING AREA UPDATE ACCEPT message without any P-TMSI and with a new TMSI. The UE acknowledge the new TMSI by sending ROUTING AREA UPDATE COMPLETE message. Further communication UE-SS is performed by the old P-TMSI. For CS calls, the new TMSI is used.

4) The UE is CS paged in order to verify that the TMSI is used for CS calls.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.

Step	Direction		Message	Comments
	UE	SS		
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
6a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
7a		SS		The SS starts integrity protection.
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI Routing area identity = RAI-4
9	->		ROUTING AREA UPDATE COMPLETE	
9a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
10b			Void	
10c			Void	
11	->		SERVICE REQUEST	service type = "paging response"
11aa		SS		The SS starts integrity protection.
11a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
11b			Void	
12	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = "Terminating conversational call"
13		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
14			Void	
15			Void	
16	->		PAGING RESPONSE	Mobile identity = IMSI
17		SS		The SS releases the RRC connection.
18			Void	
19		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
19a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-1 signature Routing area identity = RAI-4 TMSI status = no valid TMSI available

Step	Direction		Message	Comments
	UE	SS		
20a		SS		The SS starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' No P-TMSI P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
22	->		ROUTING AREA UPDATE COMPLETE	
23	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call".
23a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
23b			Void	
23c			Void	
24	->		SERVICE REQUEST	service type = "paging response"
24aa		SS		The SS starts integrity protection.
24a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
24b			Void	
25	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call"
26		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
27			Void	
28			Void	
29	->		PAGING RESPONSE	Mobile identity = TMSI-1
30		SS		The SS releases the RRC connection.
31			Void	
32	UE			The UE is switched off or power is removed (see ICS).
32a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
33	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
34		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step9, UE shall:

- acknowledge the new P-TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step11, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step16, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step20, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step22, UE shall:

- acknowledge the new TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step24, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step29, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

12.4.2.2 Combined routing area updating / UE in CS operation at change of RA

12.4.2.2.1 Definition

12.4.2.2.2 Conformance requirement

PS UE in UE operation mode A that is in an ongoing CS transaction at change of routing area shall initiate the normal routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.1

12.4.2.2.3 Test purpose

To test the behaviour of the UE if the routing area is changed during an ongoing circuit switched transmission.

12.4.2.2.4 Method of test

Initial condition

System Simulator:

One cell, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) is operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A combined PS attach procedure is performed. The UE in UE operation mode A initiates a CS call. The routing area change. The UE will perform the normal routing area updating procedure during the ongoing circuit-switched transaction.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1				Set the cell type of cell A to the "Serving cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			A CS call is initiated.
7			Void	
8			Void	
8a	<-		UTRAN MOBILITY INFORMATION	The SS conveys updated CN system information for the PS domain to the UE in connected mode, including a new routing area code.
8b	->		UTRAN MOBILITY INFORMATION CONFIRM	
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
9a	SS			The SS starts integrity protection.
10	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
11	->		ROUTING AREA UPDATE COMPLETE	
11a	SS			The SS releases the PS signalling connection, but keeps the RRC connection.
12	<-		PAGING TYPE2	Mobile identity = P-TMSI-1 Paging order is for PS services.
13	->		SERVICE REQUEST	service type = "paging response"
13a	SS			The SS starts integrity protection.
13b	SS			The SS releases the CS call.
14	SS			The SS initiates the RRC connection release.
14a	->		ROUTING AREA UPDATE REQUEST	Update type = ìcombined RA/LA updatingî or "combined RA/LA updating with IMSI Attach", P-TMSI-1 signature, Routing area identity = RAI-4, TMSI status = no valid TMSI available
14b	SS			The SS starts integrity protection.
14c	<-		ROUTING AREA UPDATE ACCEPT	Update result = "combined RA/LA updated", No P-TMSI, P-TMSI-3 signature, Routing area identity = RAI-1

15	UE		The UE is switched off or power is removed (see ICS).
15a	SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
16	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
17	SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

UTRAN MOBILITY INFORMATION (step 8a)

The contents of the UTRAN MOBILITY INFORMATION message in this test case is identical to the default message in TS 34.108, with the following exceptions.

Information Element	Value/remark
New U-RNTI	Not Present
New C-RNTI	Not Present
UE Timers and constants in connected mode	Not Present
CN information info	
- PLMN identity	Not Present
- CN common GSM-MAP NAS system information	Not Present
- CN domain related information	
- CN domain identity	CS domain
- CN domain specific GSM-MAP NAS system info	
- T3212	30
- ATT	1
- CN domain specific DRX cycle length coefficient	7
- CN domain related information	
- CN domain identity	PS domain
- CN domain specific GSM-MAP NAS system info	
- RAC	RAC-2
- NMO	0 (Network Mode of Operation I)
- CN domain specific DRX cycle length coefficient	7

12.4.2.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE has received the new RAI from the SS in the UTRAN MOBILITY INFORMATION message, the UE shall:

- initiate the normal routing area updating procedure.

12.4.2.3 Combined routing area updating / RA only accepted

12.4.2.3.1 Definition

12.4.2.3.2 Conformance requirement

1) If the network accepts the combined PS attach procedure, but GMM cause code 'IMSI unknown in HLR' is sent to the UE the User Equipment shall delete the stored TMSI, LAI and CKSN. The User Equipment shall consider USIM invalid for non-PS services until power is switched off or USIM is removed.

2) If the network accepts the combined PS attach procedure, but GMM cause code 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is sent to the UE, an UE operation mode A UE may perform an MM IMSI attach procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.3.3 Test purpose

Test porpose1

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'IMSI unknown in HLR'.

Test porpose2

To test the behaviour of the UE if the network accepts the routing area updating procedure with indication RA only, GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion'.

12.4.2.3.4 Method of test

Test Procedure1

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message. The SS allocates a P-TMSI and returns ROUTING AREA UPDATE ACCEPT message with a P-TMSI. GMM cause 'IMSI unknown in HLR' is indicated from SS. Further communication UE - SS is performed by the P-TMSI. CS services are not possible.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
1a	UE			The UE is set in UE operation mode A (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -/- IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'IMSI unknown in HLR'
9	->		ROUTING AREA UPDATE COMPLETE	
10	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
10a	->		RRC CONNECTION REQUEST	
10b	<-		RRC CONNECTION SETUP	
10c	->		RRC CONNECTION SETUP COMPLETE	
11	->		SERVICE REQUEST	service type = "paging response"
11a	<-		RRC CONNECTION RELEASE	
11b	->		RRC CONNECTION RELEASE COMPLETE	
12	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services.
13	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'

16	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Test Procedure2

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells operating in network operation mode I. T3212 is set to 6 minutes.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Automatic MM IMSI attach procedure for UE operation mode A UE Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

After attach, the UE sends an ROUTING AREA UPDATE REQUEST message . The SS allocates a new P-TMSI signature and returns ROUTING AREA UPDATE ACCEPT message. GMM cause 'MSC temporarily not reachable', 'Network failure' or 'Congestion' is indicated from SS. The cause code is arbitrarily chosen. This procedure is repeated until the routing area updating attempt counter is equal to five. An UE operation mode A UE may perform an MM IMSI attach procedure (according to the ICS statement). Further communication UE - SS is performed by the P-TMSI. The existence of a signalling channel is verified by a request for mobile identity. It is further verified that the UE after a successful IMSI attach procedure can perform CS services.

Expected Sequence

Dependent whether the option 'Automatic MM IMSI attach procedure for UE operation mode A UE' is not supported or not, the steps 1-13 or 14-35 apply depending on manufacturer (see ICS).

Step	Direction		Message	Comments
	UE	SS		
1		SS		The following messages are sent and shall be received on cell A Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
1a	UE			The UE is set in UE operation mode A and no automatic MM IMSI attach procedure is indicated (see ICS).
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -/- IMSI attach' or 'GPRS~~PS~~ attach while IMSI attached' Mobile identity =IMSI TMSI status = no valid TMSI available

Step	Direction		Message	Comments
	UE	SS		
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	SS			The following messages are sent and shall be received on cell B. Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
8	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
9	->		ROUTING AREA UPDATE COMPLETE	
10				The routing area updating attempt counter =1. The combined routing area updating procedure is reinitialised at the expiry of T3311
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-4 TMSI status = no valid TMSI available
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
13	->		ROUTING AREA UPDATE COMPLETE	
14				The routing area updating attempt counter =2. The combined routing area updating procedure is reinitialised at the expiry of T3311
15	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-4 TMSI status = no valid TMSI available
16	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
17	->		ROUTING AREA UPDATE COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
18				The routing area updating attempt counter =3. The combined routing area updating procedure is reinitialised at the expiry of T3311
19	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-4 TMSI status = no valid TMSI available
20	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
21	->		ROUTING AREA UPDATE COMPLETE	
22				The routing area updating attempt counter =4. The combined routing area updating procedure is reinitialised at the expiry of T3311
23	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-4 TMSI status = no valid TMSI available
24	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
25	->		ROUTING AREA UPDATE COMPLETE	
26				The routing area updating attempt counter =5. The combined routing area updating procedure is reinitialised at the expiry of T3311
27	UE			The UE is switched off or power is removed (see ICS).
28	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach' Stop the sequence.
28a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
				The following messages are sent and shall be received on cell B
29	UE			The UE is set in UE operation mode A and automatic MM IMSI attach procedure is indicated (see ICS).
30	UE			The UE is powered up or switched on and initiates an attach (see ICS).
31	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -/- IMSI attach' or 'GPRS~~PS~~ attach while IMSI attached' Mobile identity = IMSI TMSI status = no valid TMSI available
31a	<-		AUTHENTICATION AND CIPHERING REQUEST	
31b	->		AUTHENTICATION AND CIPHERING RESPONSE	
31c	SS			The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
32	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-4
33	->		ATTACH COMPLETE	
34	SS			The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell ". (see note)
35	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-4 TMSI status = no valid TMSI available
36	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
37	->		ROUTING AREA UPDATE COMPLETE	
38				The routing area updating attempt counter =1. The combined routing area updating procedure is reinitialised at the expiry of T3311
39	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
40	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
41	->		ROUTING AREA UPDATE COMPLETE	
42				The routing area updating attempt counter =2. The combined routing area updating procedure is reinitialised at the expiry of T3311
43	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
44	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
45	->		ROUTING AREA UPDATE COMPLETE	
46				The routing area updating attempt counter =3. The combined routing area updating procedure is reinitialised at the expiry of T3311

Step	Direction		Message	Comments
	UE	SS		
47	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
48	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
49	->		ROUTING AREA UPDATE COMPLETE	
50				The routing area updating attempt counter =4. The combined routing area updating procedure is reinitialised at the expiry of T3311
51	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-1 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
52	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1 GMM cause = 'MSC temporarily not reachable', 'Network failure' or 'Congestion' (arbitrarily chosen)
53	->		ROUTING AREA UPDATE COMPLETE	
54				The routing area updating attempt counter =5.
55	UE		Registration on CS	Optional step. See TS 34.108 This is applied only for UE in UE operation mode A. Parameter mobile identity is TMSI-1. Steps 56 - 62 are only performed if the UE has performed the Registration Procedure in step 55.
56	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
57	->		RRC CONNECTION REQUEST	
58	<-		RRC CONNECTION SETUP	
59	->		RRC CONNECTION SETUP COMPLETE	
60	->		PAGING RESPONSE	Mobile identity = TMSI-1
61	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
62	->		RRC CONNECTION RELEASE COMPLETE	
63	UE			The UE is switched off or power is removed (see ICS).
64	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS ~~PS~~ detach'
65	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.3.5 Test requirements

Test requirements for Test Procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure.

At step9, UE shall:

- acknowledge the new P-TMSI by sending the ROUTING AREA UPDATE COMPLETE message.

At step11, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step13, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

Test requirements for Test Procedure2

At step3 and 31, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step6 and 35, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure.

At step11, 15, 19 and 23, UE shall:

- re-initiate the combined routing area updating procedure.

At step39, 43, 47 and 51, UE shall:

- re-initiate the combined routing area updating procedure.

At step55, UE shall:

- perform MM location updating procedure.

At step60, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

12.4.2.3a Void

12.4.2.4 Combined routing area updating / rejected / PLMN not allowed

12.4.2.4.1 Definition

12.4.2.4.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'PLMN not allowed' the User Equipment shall:

1.1 not perform combined GPRS attach when switched on in the same location area or PLMN, except when the PLMN identity is equal to the HPLMN.

1.2 delete the stored RAI, PS-CKSN, P-TMSI, P-TMSI signature, TMSI CKSN and LAI.

1.3 store the PLMN in the 'forbidden PLMN list', except when the PLMN identity is equal to the HPLMN.

2) An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, enters state MM IDLE and for all causes except #12, #14 and #15 deletes the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clause 4.7.5.2.

3GPP TS 23.122 clause 3.1.

12.4.2.4.3 Test purpose

To test the behaviour of the UE if the network rejects the combined routing area updating procedure of the UE with the cause 'PLMN not allowed'.

12.4.2.4.4 Method of test

Initial condition

System Simulator:

Four cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell B in MCC1/MNC2/LAC1/RAC2 (RAI-10), cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2) and cell E in MCC1/MNC3/LAC1/RAC1 (RAI-11).

The PLMN containing Cell E is equivalent to the PLMN that contains Cell A.
All four cells are operating in network operation mode I

The HPLMN is different from MCC1/MNC2.

NB: i) Cell D will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell E will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service	Yes/No
UE operation mode A	Yes/No
Switch off on button	Yes/No
Automatic PS attach procedure at switch on or power on	Yes/No
PS attach attempted automatically by outstanding request	Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'PLMN not allowed'. The SS checks that the UE does not perform PS attach if activated in the same PLMN. The SS checks that the UE does not perform IMSI attach if activated in the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell D to the "Non-Suitable cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-8 P-TMSI-8 signature Routing area identity = RAI-8 Mobile identity = TMSI-1 Equivalent PLMN: MCC = 1, MNC=3
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B and cell E.
7		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". Set the cell type of cell E to the "Suitable neighbour cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating'Old P-TMSI Signature= P-TMSI-8 signature Routing area identity = RAI-8 Valid TMSI is available. TMSI status = valid TMSI available or IE not present Mobile identity = P-TMSI-8
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'PLMN not allowed'
10a		SS		The SS releases the RRC connection.
10b				Cell E is preferred by the UE Step 11 and 11a are only performed by an UE which will not initiate a PS attach automatically (see ICS)
11 conditional	UE		Registration on CS	See TS 34.108 Location Update Procedure is initiated from the UE.

Step	Direction		Message	Comments
	UE	SS		
11a conditional				The UE initiates an attach by MMI or by AT command.
12		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
12a	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' or 'GPRS attach while IMSI attached' Mobile identity =IMSI TMSI status = no valid TMSI available
13	<-		AUTHENTICATION AND CIPHERING REQUEST	
14	->		AUTHENTICATION AND CIPHERING RESPONSE	
14a		SS		The SS starts integrity protection.
15	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-11 P-TMSI-11 signature Routing area identity = RAI-11 Mobile identity = TMSI-2 Equivalent PLMN: MCC = 1, MNC=2
16	->		ATTACH COMPLETE	
17		SS		The SS releases the RRC connection.
18	<-		PAGING TYPE1	Paging is sent on cell A. Mobile identity= P-TMSI-11 P-TMSI-11 signature Paging order for PS services
18a				The UE shall not initiate an RRC connection. This is checked during 3 seconds.
19	<-		PAGING TYPE1	Paging is sent on cell B. Mobile identity = TMSI-2 Paging order is for CS services.
20		UE		The UE shall not initiate an RRC connection. This is checked during 3 seconds.
21			Void	
22			Void	
23			Void	
24			Void	
25			Void	
26			Void	
27		SS		The following messages are sent and shall be received on cell D. Set the cell type of cell B and E to the "Non-Suitable cell". Set the cell type of cell D to the "Serving cell". (see note)
28		UE		Cell D is preferred by the UE.
28a			Void	
29			Void	
29a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
30	->		ROUTING AREA UPDATE REQUEST	Update type = 'combined RA/LA updating' P-TMSI Signature= P-TMSI-11 signature Routing area identity = RAI-11 TMSI status = valid TMSI available or IE not present
30a		SS		The SS starts integrity protection.

Step	Direction		Message	Comments
	UE	SS		
31	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'combined RA/LA updated ' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2
32	->		ROUTING AREA UPDATE COMPLETE	
33	UE			The UE is switched off or power is removed (see ICS).
34	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS ~~PS~~ / IMSI detach'
35	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Serving cell" and "Suitable neighbour cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.4.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- -initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step 10, the UE shall delete the equivalent PLMN list (MCC=1, MNC=3).

At step 12, the UE shall initiate a PS attach procedure to cell E.

At step18, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step19, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step30, UE shall:

- perform the combined routing area update procedure.

12.4.2.5a Combined routing area updating / rejected / roaming not allowed in this location area

12.4.2.5a.1 Definition

12.4.2.5a.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'roaming not allowed in this location area' the User Equipment:

   1.1 shall not perform combined PS attach when in the same location area.

1.2 shall store the LA in the 'forbidden location areas for roaming'.

1.3 shall perform a routing area update when entering in a new location area if the LAI or the PLMN identity is not contained in any of the lists "forbidden LAs for roaming", "forbidden LAs for regional provision of service", "forbidden PLMNs for GPRS service" or "forbidden PLMNs" and the current update status is different from "IDLE NO IMSI".

2) The User Equipment shall reset the list of 'Forbidden location areas for roaming' when switched off or when the USIM is removed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

3GPP TS 23.122 clause 4.5.2.

12.4.2.5a.3 Test purpose

Test purpose1

To test that on receipt of a rejection using the 'Roaming not allowed in this location area' cause code, the UE ceases trying a routing area updating procedure on that location area. Successful combined routing area updating procedure is possible in other location areas.

Test purpose2

To test that if the UE is switched off or the USIM is removed the list of 'forbidden location areas for roaming' is cleared.

12.4.2.5a.4 Method of test

12.4.2.5a.4.1 Test procedure1

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this location area'. A new attempt for a combined PS attach is not possible. Successful combined routing area updating procedure is performed in another location area. The UE is moved back to the 1st location area. A combined routing area updating shall not be performed, as the LA is on the forbidden list.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ -/-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2 Mobile identity = TMSI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
		SS		The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-2 Mobile identiy = P-TMSI-2
9a		SS		SS starts integrity protection
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this location area'
10a		SS		The SS releases the RRC connection.
11			Void	
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
		SS		The following messages are sent and shall be received on cell A.
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
18	UE			Cell A is preferred by the UE.
18a			Void	

Step	Direction		Message	Comments
	UE	SS		
19			Void	
19a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' or 'Combined RA/LA updating with IMSI attach' P-TMSI-2 signature Routing area identity = RAI-2 Mobile identiy = P-TMSI-2
20a		SS		The SS starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2 Mobile identity = TMSI-1
22	->		ROUTING AREA UPDATE COMPLETE	
22a		SS		The SS releases the RRC connection.
23	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call"
24		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
25			Void	
26			Void	
27	->		PAGING RESPONSE	Mobile identity = TMSI-1
27a		SS		The SS starts integrity protection.
28		SS		The SS releases the RRC connection
29			Void	
30	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating background call"
30a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating background call".
30b			Void	
30c			Void	
31	->		SERVICE REQUEST	service type = "paging response"
31o		SS		The SS starts integrity protection.
31a		SS		The SS releases the RRC connection.
31b			Void	
				The following messages are sent and shall be received on cell B.
32		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
33		UE		No ROUTING AREA UPDATE REQUEST sent to SS (SS waits 30 seconds).
34	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
35		UE		No response from the UE to the request. This is checked for 10 seconds.
NOTE: The definitions for "Suitable neighbour cell", "Non-suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

12.4.2.5a.4.2 Test procedure2

Initial condition

System Simulator:

Two cells, cell A in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6, Not HPLMN).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Roaming not allowed in this location area'. The UE is switched off for 10 seconds and switched on again. The SS checks that a combined PS attach is possible on the cell on which the previous combined routing area updating had been rejected.

If USIM removal is possible without switching off:
The SS rejects a routing area updating with the cause value 'Roaming not allowed in this location area'. The USIM is removed and inserted in the UE. The SS checks that a PS attach procedure and routing area updating procedure is possible on the cell on which the routing area updating had previously been rejected.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
2a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2 Mobile identity = TMSI-1
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
7		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
8	UE			Cell B is preferred by the UE.
8a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-2 Mobile identiy = P-TMSI-2
9a		SS		The SS starts integrity protection
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'Roaming not allowed in this location area'
10a		SS		The SS releases the RRC connection.
11			Void	
12			Void	
13	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
14	UE			No response from the UE to the request. This is checked for 10 seconds.
15	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
16	UE			The UE shall not initiate an RRC connection. This is checked during 3 seconds.
17	UE			If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
17a		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)

Step	Direction		Message	Comments
	UE	SS		
18	UE			The UE gets the USIM replaced, is powered up or switched on.
18a	UE		Registration on CS	See TS 34.108 This step is applied only for non-auto attach UE. Location Update Procedure initiated from the UE.
19	UE			The UE initiates an attach (see ICS) by MMI or AT command.
19a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ATTACH REQUEST	Attach type = 'Combined ~~PS~~ /~~-~~IMSI attach' Mobile identity =P-TMSI_2 TMSI status = valid TMSI available or IE not present
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c	SS			The SS starts integrity protection.
21	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-6 Mobile identity = TMSI-1
22	->		ATTACH COMPLETE	
22a	SS			The SS releases the RRC connection.
23	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = "Terminating conversational call"
24	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating conversational call".
25			Void	
26			Void	
27	->		PAGING RESPONSE	Mobile identity = TMSI-1
27a	SS			The SS starts integrity protection.
28	SS			The SS releases the RRC connection.
29			Void	
30	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging cause = "Terminating background call"
30a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating background call".
30b			Void	
30c			Void	
31	->		SERVICE REQUEST	service type = "paging response"
31o	SS			The SS starts integrity protection.
31a	SS			The SS releases the RRC connection.
31b			Void	
32	UE			The UE is switched off or power is removed (see ICS).
33	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined ~~PS~~GPRS/IMSI detach'
34	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Step	Direction		Message	Comments
	UE	SS		
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.5a.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence

At step12, when the SS rejects the combined routing area update procedure with GMM cause = 'Roaming not allowed in this location area', UE shall:

- not initiate a PS attach procedure.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step20, UE shall:

- initiate the combined RA/LA updating procedure.

At step27, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step31, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

At step35, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step9, UE shall:

- initiate the combined routing area update procedure(Update type = 'Combined RA/LA updating') with the information elements specified above Expected Sequence.

At step14, when the UE receives the paging message for PS domain, UE shall;

- not respond to the paging message for PS domain.

At step16, when the UE receives the paging message for CS domain, UE shall:

- not respond to the paging message for CS domain.

At step20, UE shall:

- initiate the combined PS attach procedure.

At step27, when the UE receives the paging message for CS domain, UE shall;

- respond to the paging message for CS domain by sending the PAGING RESPONSE message.

At step31, when the UE receives the paging message for PS domain, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.4.2.5b Combined routing area updating / rejected / No Suitable Cells In Location Area.

12.4.2.5b.1 Definition

12.4.2.5b.2 Conformance requirement

1) If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'No Suitable Cells In Location Area', the User Equipment shall:

   1.1 store the LA or the PLMN identity in the 'forbidden location areas for roaming'.

   1.2 search for a suitable cell in a different location area on the same PLMN.

2) An MS that receives a ROUTING AREA UPDATE REJECT message stops timer T3330, enters state MM IDLE and for all causes except #12, #14 and #15 deletes the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5b.3 Test purpose

To test the behaviour of the UE if the network rejects a combined routing area updating procedure of the UE with the cause 'No Suitable Cells In Location Area'.

To test that the UE deletes the list of forbidden LAs when power is switched off'.

12.4.2.5b.4 Method of test

Initial condition

System Simulator:

Five cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell E in MCC1/MNC2/LAC1/RAC1 (RAI-5).

All five cells are operating in network operation mode I.

The PLMN contains Cell A, B and D is equivalent to the PLMN that contains Cell E.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell D will be mapped to Cell 3 as found in TS 34.108 clause 6.1.4.2.

iii) Cell E will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall performa combined routing area update procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following message are sent and shall be received on cell D.
1		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Serving cell". Set the cell type of cell E to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell D is preferred by the UE.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4 Mobile identity = IMSI Equivalent PLMN: MCC = 1, MNC=2
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". Set the cell type of cell D to the "Non-Suitable cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C Cell A is preferred by the UE.
7	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-1 signature Routing area identity = RAI-4
8	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area'
8a		SS		The SS releases the RRC connection. The following message are sent and shall be received on cell B.
9	->		ROUTING AREA UPDATE REQUEST	Attach type = 'Combined RA/LA updating with IMSI attach' Mobile identity = P-TMSI-1
10	<-		ROUTING AREA UPDATE ACCEPT	Attach result = 'Combined RA/LA updating with IMSI attach' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-3 Equivalent PLMN: MCC = 1, MNC=2
11	->		ROUTING AREA UPDATE COMPLETE	

11a	SS		The SS releases the RRC connection.
12	SS		Set the cell type of cell D to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell E to the "Suitable neighbour cell". (note) The SS deactivates Cell B and activates Cell D and Cell E The SS configures power level of each Cell as follows. Cell D > Cell E
13			Cell D is preferred by the UE.
14	->	ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-1 signature Routing area identity = RAI-4
15	<-	ROUTING AREA UPDATE REJECT	GMM cause = 'No Suitable Cells In Location Area'
15a	SS		The SS releases the RRC connection.
16			The following message are sent and shall be received on cell E.
17	->	ROUTING AREA UPDATE REQUEST	Attach type = 'Combined RA/LA updating with IMSI attach' Mobile identity = IMSI
18	<-	ROUTING AREA UPDATE ACCEPT	Attach result = 'Combined RA/LA updated' Mobile identity = P-TMSI-3 P-TMSI-3 signature Routing area identity = RAI-5 Equivalent PLMN: MCC=1. MNC=2
19	->	ROUTING AREA UPDATE COMPLETE	
20	SS		The SS releases the RRC connection.
21	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell", "Serving cell" and "Non-Suitable cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.4.2.5b.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area update procedure.

At step 8, the UE shall maintain the equivalent PLMN list (MCC=1, MNC=2).

At step9, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the combined routing area update procedure.

At step 15, the UE shall maintain the equivalent PLMN list (MCC=1, MNC=2).

At step 17, when the UE enters a suitable cell in a different but equivalent PLMN (MCC=1, MNC=2), UE shall:

- perform the combined routing area update procedure.

12.4.2.5c Combined routing area updating / rejected / Location area not allowed

12.4.2.5c.1 Definition

12.4.2.5c.2 Conformance requirement

If the network rejects a combined routing area updating procedure from the User Equipment with the cause 'Location area not allowed', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- delete any TMSI, LAI and ciphering key sequence number.
- store the LAI in the list of "forbidden location areas for regional provision of service"
- not delete the list of "equivalent PLMNs".
- perform a cell selection.

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5c.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'.

12.4.2.5c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode I (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid IMSI.

The UE is in UE operation mode A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'Location area not allowed'. The SS checks that the UE performs combined PS attach when the UE enters a equivalent PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2	SS			The SS is set in network operation mode I. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2 Mobile identity = TMSI-1 Equivalent PLMNs = MCC2,MNC1
5a	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-2
9	<-		ROUTING AREA UPDATE REJECT	GMM cause = Location area not allowed '
10	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
14	UE			The UE performs cell selection.
				The following messages are sent and shall be received on cell C.
15	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available

16	<-	ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-2 signature Routing area identity = RAI-6 Mobile identity = TMSI-2 Equivalent PLMNs = MCC1,MNC1
17	->	ATTACH COMPLETE	
18	UE		The UE is switched off or power is removed (see ICS).
19	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
20	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.4.2.5c.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- initiate the combined routing area update procedure.

At step 12, the UE shall:

- not initiate combined PS attach procure.

At step 14, the UE shall:

- perform combined PS attach procedure with Mobile identity = IMSI and Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' to the equivalent cell.

12.4.2.5d Combined routing area updating / rejected / PS services not allowed in this PLMN

12.4.2.5d.1 Definition

12.4.2.5d.2 Conformance requirement

If the network rejects a combined routing area updating procedure from the User Equipment with the cause '~~PS Services not allowed in this PLMN~~GPRS services not allowed in this PLMN', the User Equipment shall:

- delete any RAI, P-TMSI, P-TMSI signature, and PS ciphering key sequence number stored.
- set the PS update status to GU3 ROAMING NOT ALLOWED.
- store the PLMN identity in the "forbidden PLMNs for GPRS service" list.
- not delete the list of "equivalent PLMNs".

Reference

3GPP TS 24.008 clauses 4.7.5.2.4

12.4.2.5d.3 Test purpose

To test the behaviour of the UE if the network rejects the routing area updating procedure of the UE with the cause '~~PS services not allowed in this PLMN~~GPRS services not allowed in this PLMN'.

12.4.2.5d.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6).
All three cells are operating in network operation mode I (in case of UE operation mode A).

The PLMN contains Cell C is equivalent to the PLMN that contains Cell A.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.2.

ii) Cell C will be mapped to Cell 7 as found in TS 34.108 clause 6.1.4.2.

User Equipment:

The UE has a valid IMSI.

The UE is in UE operation mode A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a combined routing area updating with the cause value 'GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~'. The SS checks that the UE performs combined PS attach when the UE enters a equivalent PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode A (see ICS).
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Mobile identity = TMSI-1 Equivalent PLMNs = MCC2,MNC1
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6	SS			Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-8
9	<-		ROUTING AREA UPDATE REJECT	GMM cause ='GPRS services not allowed in this PLMN~~PS service not allowed in this PLMN~~'
10	UE			The UE initiates an attach by MMI or by AT command.
12	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
13	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the "Serving cell". (see note)
				The following messages are sent and shall be received on cell C.
14	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available

15	<-	ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-2 signature Routing area identity = RAI-6 Mobile identity = TMSI-2 Equivalent PLMNs = MCC1,MNC1
16	->	ATTACH COMPLETE	
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
19	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell", "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.4.2.5d.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the Combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, UE shall:

- initiate the combined routing area update procedure.

At step 12, the UE shall:

- not initiate combined PS attach procure.

At step 14, the UE shall:

- perform combined PS attach procedure with Mobile identity = IMSI and Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' to the equivalent cell.

12.4.2.6 Combined routing area updating / abnormal cases / access barred due to access class control

12.4.2.6.1 Definition

12.4.2.6.2 Conformance requirement

1) The UE shall not perform combined routing area updating procedure, but stays in the current serving cell and applies normal cell reselection process.

2) The User Equipment shall perform the combined routing area updating procedure when:

   2.1 Access is granted.

   2.2 Cell is changed.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.6.3 Test purpose

Test purpose1

To test the behaviour of the UE in case of access class control (access is granted).

Test purpose2

To test the behaviour of the UE in case of access class control (cell is changed).

12.4.2.6.4 Method of test

12.4.2.6.4.1 Test procedure1

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is initially indicated to be barred on Cell B.

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has Access Class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has Access Class x barred.
Both cells are operating in network operation mode I.

User Equipment:

The UE has valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

The SS indicates that access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ ~~/~~-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Mobile identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ROUTING AREA UPDATE REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
9		SS		The access class x is not barred anymore.
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-4
12	->		ROUTING AREA UPDATE COMPLETE	
13	UE			The UE is switched off or power is removed (see ICS).
14	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS~~PS~~/IMSI detach'
15		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.6.4.2 Test procedure2

Initial condition

An access class x (0-15) is arbitrarily chosen. The USIM is programmed with this access class x. Communication with User Equipments using access class x is indicated to be barred on cell B.

System Simulator:

Three cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) has access class x not barred, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x barred, cell C in MCC1/MNC1/LAC1/RAC2 (RAI-4) has access class x not barred.
All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach procedure is performed. The routing area is changed. The SS indicates access class x barred. A routing area updating procedure is not performed.

A cell change is performed into a cell where access class x is not barred. A routing area updating procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ ~~/~~-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Mobile identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the " Suitable neighbour cell ". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	UE			No ROUTING AREA UPDATE REQUEST sent to SS, as access class x is barred (SS waits 30 seconds).
		SS		The following messages are sent and shall be received on cell C.
9		SS		Set the cell type of cell B to the "Suitable neighbour cell ". Set the cell type of cell C to the "Serving cell". (see note)
10	UE			Cell C is preferred by the UE.
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-4
13	->		ROUTING AREA UPDATE COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS~~PS~~/IMSI detach'
16		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.4.2.6.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the access class x is barred , UE shall:

- not perform the combined routing area updating procedure.

At step10, when the access class x is not barred, UE shall:

- perform the combined routing area updating procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the access class x is barred UE shall:

- not perform the combined routing area updating procedure.

At step11, when the serving cell is changed, UE shall:

- perform the combined routing area updating procedure.

12.4.2.7 Combined routing area updating / abnormal cases / attempt counter check / procedure timeout

12.4.2.7.1 Definition

12.4.2.7.2 Conformance requirement

1) When a T3330 timeout has occurred during a routing area updating procedure, the UE shall repeat the routing area updating procedure after T3330 timeout until the procedure is repeated five times.

2) When a routing area updating procedure is repeated five times, the routing area updating attempt counter is incremented and five more routing area updating procedures are performed. This procedure is repeated until the routing area updating attempt counter is five, the UE shall then start timer T3302.

3) When the T3302 expire, a new routing area updating procedure shall be initiated.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.7.3 Test purpose

To test the behaviour of the UE with respect to the attempt counter.

12.4.2.7.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI. UE is Idle Updated on cell A.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure (routing area updating attempt counter zero). The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter one) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter two) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter three) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and T3311 is started.

The UE initiates a new routing area updating procedure (routing area updating attempt counter four) after T3311 expires. The SS does not answer with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. The UE restarts the routing area updating procedure four times. The SS never answers with ROUTING AREA UPDATE ACCEPT message before T3330 timeout. After five consecutive routing area update procedures, the routing area updating attempt counter is incremented and as the routing area updating attempt counter is five. T3302 is started.

The UE may perform a Location Update procedure.

The UE initiates a routing area updating procedure with routing area updating attempt counter zero after T3302 expires with the stored P-TMSI, P-TMSI signature, PS CKSN and RAI.

T3302; set to 12 minutes.

T3311; 15 seconds.

T3330; 15 seconds.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ ~~-~~IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Mobile identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE. K = 1.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k (k is not visible. It is only used for clarifying the sequence.) Retransmission counter = 0
9		SS		No response is given from the SS.
10		SS		The SS verifies that the time between the RA update requests is T3330seconds
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 1
12		SS		No response is given from the SS.
13		SS		The SS verifies that the time between the RA update requests is T3330seconds
14	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 2
15		SS		No response is given from the SS.
16		SS		The SS verifies that the time between the RA update requests is T3330seconds

Step	Direction		Message	Comments
	UE	SS		
17	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 3
18	SS			No response is given from the SS.
19	SS			The SS verifies that the time between the RA update requests is T3330seconds
20	->		ROUTING AREA UPDATING REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available Routing area updating attempt counter = k Retransmission counter = 4
21	SS			No response is given from the SS.
22	SS			The SS verifies that the time between the RA update requests is T3311 + T3330 seconds.
23	SS			Step 8 ñ 22 is repeated four times with k = 2, k = 3, k = 4 and k = 5
23a optional	UE		Registration on CS	The UE may perform a normal location updating procedure. See TS 34.108
24	SS			The SS verifies that the time between the RA update requests is T3302 + T3330 seconds
25	->		ROUTING AREA UPDATE REQUEST	Update type = - 'combined RA/LA updating with IMSI attach' (If Step23a is performed) - 'combined RA/LA updating' (If Step23a is not performed) P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
26	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI Routing area identity = RAI-4
27	->		ROUTING AREA UPDATE COMPLETE	
28	UE			The UE is switched off or power is removed (see ICS).
29	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRSPS/IMSI detach'
30	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.7.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the combined routing area updating procedure with information elements specified in the above Expected Sequence.

UE shall perform the following actions depending on the conditions described below.

Case 1) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retransmission counter less than five

At step11, 14, 17 and 20, UE shall:

- repeat the combined routing area updating procedure after the timer T3330 timeout

Case2) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter less than five and the Retransmission counter five

At step 22, UE shall:

- not repeat the combined routing area updating procedure.

Case 3) A timer T3311 timeout has occurred and the Routing area attempt counter is less than five,

At step23, UE shall:

- repeat the combined routing area updating procedure

Case 4) A timer T3330 timeout has occurred during a combined routing area updating procedure with the Routing area attempt counter five and the Retransmission counter five.

At step24, UE shall:

- not initiate a routing area updating procedure.

Case5) The timer T3302 expires

At step25, UE shall:

- initiate the new routing area updating procedure

12.4.2.8 Combined routing area updating / abnormal cases / change of cell into new routing area

12.4.2.8.1 Definition

12.4.2.8.2 Conformance requirement

When a change of cell into a new routing area is performed before the routing area updating procedure is finished, the UE shall abort the routing area updating procedure and re-initiate it in the new routing area.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.8.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.8.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC1/MNC1/LAC1/RAC3 (RAI-5).
All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update into a new routing area. The UE shall re-initiate a routing area updating procedure in the new routing area. The UE shall not increment the attempt counter.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Mobile identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
9		SS		No response id given from the SS.
		SS		The following messages are sent and shall be received on cell C.
10		SS		Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Serving cell". (see note)
11	UE			The RF level of cell B is lowered, and the RF level of cell C is increased, until cell C is preferred by the UE.
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI Routing area identity = RAI-5
14	->		ROUTING AREA UPDATE COMPLETE	
15	UE			The UE is switched off or power is removed (see ICS).
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS~~PS~~/IMSI detach'

17	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE:	The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".		

Specific message contents

None.

12.4.2.8.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate the routing area update procedure.

At step12, when change of cell into new routing area is performed before the routing area updating procedure is finished, UE shall:

- abort the routing area updating procedure.
- re-initiate new routing area updating procedure in the new routing area.

12.4.2.9 Void

12.4.2.10 Combined routing area updating / abnormal cases / PS detach procedure collision

12.4.2.10.1 Definition

12.4.2.10.2 Conformance requirement

1) When a detach request is received with cause 'GPRS~~PS~~ detach' or 'combined GPRS~~PS~~/IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall terminate the routing area updating procedure and continue with the PS detach procedure.

2) When a detach request is received with cause 'IMSI detach' by the UE while waiting for a ROUTING AREA UPDATE ACCEPT message, the UE shall ignore the detach request and continue with the routing area updating procedure.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.10.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.10.4 Method of test

12.4.2.10.4.1 Test procedure1

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause ~~'PS~~ 'GPRS detach' or 'combined ~~PS~~GPRS/IMSI detach'. The UE shall terminate the routing area updating procedure and continue with the PS detach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS -~~/-IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Mobile identity = IMSI
5	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
9		SS		The SS ignores the ROUTING AREA UPDATE REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 're-attach not required'
11	->		DETACH ACCEPT	
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.10.4.2 Test procedure2

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI and RAI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a routing area updating procedure. The SS does not answer the routing area updating procedure, but initiates a PS detach procedure with cause 'IMSI detach'. The UE shall ignore the detach procedure and continue with the routing area updating procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS.
3	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ ~~-~~/IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~Combined PS / IMSI attached~~Combined GPRS/IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Mobile identity = IMSI
5	->		ATTACH COMPLETE	
		SS		The following messages are sent and shall be received on cell B.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell B to the "Serving cell". (see note)
7	UE			Cell B is preferred by the UE.
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = no valid TMSI available
9		SS		The SS ignores the ROUTING AREA UPDATE REQUEST message and initiates a detach procedure.
10	<-		DETACH REQUEST	Detach type = 'IMSI detach'
11	UE			The UE ignores the DETACH REQUEST message and continue the routing area updating procedure.
12	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = IMSI Routing area identity = RAI-4
13	->		ROUTING AREA UPDATE COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS~~PS~~/IMSI detach'
16		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.4.2.10.5 Test requirements

Test requirements for Test procedure1

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate routing area update procedure.

At step11, when the UE receives a DETACH REQUEST message with cause 'GPRS~~PS~~ detach' or 'combined GPRS~~PS~~/IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- terminate the routing area updating procedure
- continue with the PS detach procedure.

Test requirements for Test procedure2

At step3, when the UE is powered up or switched on, UE shall:

- initiate the combined PS attach procedure with the information elements specified in the above Expected Sequence.

At step8, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- initiate routing area update procedure.

At step11, the UE receives a DETACH REQUEST message with cause 'IMSI detach' from SS while waiting for a ROUTING AREA UPDATE ACCEPT message, UE shall:

- ignore the detach request procedure.
- continue with the routing area updating procedure.

12.4.3 Periodic routing area updating

12.4.3.1 Periodic routing area updating / accepted

12.4.3.1.1 Definition

12.4.3.1.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.1.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II (in case of UE operation mode A).
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode C Yes/No
UE operation mode A Yes/No
USIM removal possible without powering down Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure with identity P-TMSI. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. A routing area updating procedure is performed at T3312 timeout.

T3312; set to 6 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 11.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
5b		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
6	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' P-TMSI-2 signature Routing area identity = RAI-1
7		SS		The SS verifies that the time between the attach and the periodic RA updating is T3312
7a		SS		The SS starts integrity protection.
8	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1
8a		SS		The SS releases the RRC connection.
9	UE			The UE is switched off or power is removed (see ICS).
9a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
10	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
10a		SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
11				The SS is set in network operation mode II.
12	UE			The UE is set in UE operation mode A(see ICS) and the test is repeated from step 3 to step 10.

Specific message contents

None.

12.4.3.1.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step6, when the timer T3312 is expired, UE shall:

- initiate the routing area updating procedure with Update type = 'Periodic updating'.

12.4.3.2 Periodic routing area updating / accepted / T3312 default value

12.4.3.2.1 Definition

12.4.3.2.2 Conformance requirement

The User Equipment shall perform a periodic routing area update procedure after a T3312 timeout.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.2.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a combined PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. After 54 minutes, a periodic routing area updating procedure is initiated by the UE.

T3312; default value 54 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2	->		ATTACH REQUEST	Attach type = 'Combined GPRS~~PS~~ /-IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
2a	<-		AUTHENTICATION AND CIPHERING REQUEST	
2b	->		AUTHENTICATION AND CIPHERING RESPONSE	
2c	SS			The SS starts integrity protection.
3	<-		ATTACH ACCEPT	Attach result = 'Combined GPRS/IMSI attached~~Combined PS /IMSI attached~~' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1 T3312 = 54 min
4	->		ATTACH COMPLETE	
5	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = valid TMSI available or IE not present.
6	SS			The SS verifies that the time between the attach request and the periodic RA updating is T3312
7	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI and TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1
8	UE			The UE is switched off or power is removed (see ICS).
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS~~PS~~/IMSI detach'
10	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

None.

12.4.3.2.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step5, when the timer T3312 is expired, UE shall:

- initiate the routing area updating procedure with Update type = 'Periodic updating'.

12.4.3.3 Periodic routing area updating / no cell available / network mode I

12.4.3.3.1 Definition

12.4.3.3.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode I, then the UE shall perform a combined routing area update procedure indicating 'combined RA/LA updating with IMSI attach'.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.1.

12.4.3.3.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.3.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Cell A is operating in network operation mode II and cell B is in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Idle updated on Cell A

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a routing area updating procedure is performed immediately.

T3312; set to 6 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2		SS		The UE is set in UE operation mode A (see ICS).
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
6	->		ATTACH COMPLETE	
7		SS		After 5 minutes, the signal strength is lowered until the UE has lost contact with the SS. Set the cell type of cell A to the "non-suitable cell".(see note)
8		SS		Wait 2 minutes.
				The following messages are sent and shall be received on cell B.
9		SS		Set the cell type of cell B to the "Serving cell". (see note)
10	UE			Cell B is preferred by the UE.
11	UE			The UE immediately starts a combined RA updating procedure
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Combined RA/LA updating with IMSI attach' P-TMSI-2 signature Routing area identity = RAI-1 TMSI status = valid TMSI available or IE is omitted.
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'Combined RA/LA updated' Mobile identity = P-TMSI-3 P-TMSI-3 signature Mobile identity = TMSI-2 Routing area identity = RAI-4
14	->		ROUTING AREA UPDATE COMPLETE	
15	UE			The UE is switched off or power is removed (see ICS).
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS~~PS~~ / IMSI detach'
17		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

12.4.3.3.5 Test requirements

At step4, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step12, when the UE is both IMSI attached for PS and non-PS service , and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell that supports PS and the network is in network oration mode I, UE shall:

- perform the combined routing area update procedure indicating "combined RA/LA updating with IMSI attach".

12.4.3.4 Periodic routing area updating / no cell available

12.4.3.4.1 Definition

12.4.3.4.2 Conformance requirement

If the UE is both IMSI attached for PS and non-PS services, and if the UE lost coverage of the registered PLMN and timer T3312 expires; if the UE returns to coverage in a cell that supports PS and the network is in network operation mode II, then the UE shall perform a periodic routing area update procedure and a periodic location update procedure.

Reference

3GPP TS 24.008 clauses 4.7.2.2 and 4.7.5.2.

12.4.3.4.3 Test purpose

To test the behaviour of the UE with respect to the periodic routing area updating procedure.

12.4.3.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Idle updated on Cell A

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The UE initiates a PS attach procedure. The SS reallocates the P-TMSI and returns ATTACH ACCEPT message with a new P-TMSI and timer T3312. The UE acknowledge the new P-TMSI by sending ATTACH COMPLETE message. PS radio contact is distorted before T3312 timeout. PS radio contact is established again (after T3312 timeout), and a periodic routing area updating procedure is performed immediately (no periodic location update procedure is performed as T3212=infinity).

T3312; set to 6 minutes.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is powered up or switched on and initiates an attach (see ICS).
1a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
2	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
2a	<-		AUTHENTICATION AND CIPHERING REQUEST	
2b	->		AUTHENTICATION AND CIPHERING RESPONSE	
2c	SS			The SS starts integrity protection.
3	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
4	->		ATTACH COMPLETE	
5-12			(void)	
13	SS			After 5 minutes, the signal strength is lowered until the UE have lost contact with the SS.
14	SS			After 2 minutes, the signal strength is increased until the UE have got contact with the SS.
15	UE			The UE immediately start the periodic RA updating procedure
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' P-TMSI-2 signature Routing area identity = RAI-1
17	<-		ROUTING AREA UPDATE ACCEPT	No new mobile identity assigned. P-TMSI not included. Update result = 'RA updated' P-TMSI-3 signature Routing area identity = RAI-1
18	UE			The UE is switched off or power is removed (see ICS).
18a			IMSI DETACH INDICATION	Message not sent if power is removed This is applicable only for UE in UE operation mode A.
19	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
20	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.

Specific message contents

RRC System information block type 1

Information element	CommentValue
T3212 (Periodical Location updating)	Infinity

12.4.3.4.5 Test requirements

At step2, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step16, when the UE is both IMSI attached for PS and non-PS service, and if the UE lost coverage of the reiterated PLMN and the timer T3312 expires, if the UE returns to coverage in a cell in the same RA that supports PS and that indicates that the network is in network operation mode II, UE shall:

- perform the periodic routing area updating procedure indicating "Periodic updating".

12.5 P-TMSI reallocation

12.5.1 Definition

12.5.2 Conformance requirement

1) A User Equipment shall acknowledge a new P-TMSI when explicitly allocated.

2) The P-TMSI shall be updated on the USIM when the User Equipment is correctly deactivated in accordance with the manufacturer's instructions.

3) A User Equipment shall use the given P-TMSI in further communication with the network.

Reference

3GPP TS 24.008 clause 4.7.6.

12.5.3 Test purpose

To verify that the UE is able to receive and acknowledge a new P-TMSI by means of an explicit P-TMSI reallocation procedure.

To verify that the UE has stored the P-TMSI in a non-volatile memory.

The implicit reallocation procedure is tested in the attach procedure.

12.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No (only if mode A not supported)
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An explicit P-TMSI reallocation procedure is performed (P-TMSI reallocation command sent from the SS and acknowledged from the UE by P-TMSI reallocation complete). The UE is PS detached and switched off. Its power supply is interrupted for 10 seconds. The power supply is resumed and then the UE is switched on. A PS attach procedure is performed with the given P-TMSI as identity.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6	<-		P-TMSI REALLOCATION COMMAND	Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
7	->		P-TMSI REALLOCATION COMPLETE	
8	UE			The UE is switched off or power is removed (see ICS).
8a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
9	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
9a	SS			If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
10	UE			Ensure the power is removed from the UE for at least 10 seconds
11	UE			The UE is powered up or switched on and initiates an attach (see ICS).
11a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
12	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-2 Routing area identity = RAI-1
12a	<-		AUTHENTICATION AND CIPHERING REQUEST	
12b	->		AUTHENTICATION AND CIPHERING RESPONSE	
12c	SS			The SS starts integrity protection.
13	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI not included. Attach result = '~~PS only attached~~GPRS only attached' P-TMSI-3 signature Routing area identity = RAI-1
13a	SS			The SS releases the RRC connection and waits 5s to allow the UE to read system information.

14	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services. Paging cause = "Terminating interactive call".
15	SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
16		Void	
17		Void	
18	->	SERVICE REQUEST	service type = "paging response"
18a	SS		The SS starts integrity protection.
19	SS		The SS releases the RRC connection.
20		Void	
21	UE		The UE is switched off or power is removed (see ICS).
21a	SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
22	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
23	SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .

Specific message contents

None.

12.5.5 Test requirements

At step3, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step7, when the UE receives P-TMSI REALLOCATION COMMAND message from SS, UE shall:

- acknowledge the new P-TMSI by sending P-TMSI REALLOCATION COMPLETE message.

At step12, when the UE is powered up or switched on, UE shall:

- initiate the PS attach procedure with the information elements specified in the above Expected Sequence.

At step18, when the UE receives the paging message for PS domain with Mobile identity = P-TMSI-2, UE shall:

- respond to the paging message for PS domain by sending the SERVICE REQUEST message.

12.6 PS authentication

12.6.1 Test of authentication

The purpose of this procedure is to verify the user identity. A correct response is essential to guarantee the establishment of the connection. If not, the connection will drop.

12.6.1.1 Authentication accepted

12.6.1.1.1 Definition

12.6.1.1.2 Conformance requirement

A User Equipment shall correctly respond in an authentication and ciphering procedure by sending a response with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.1.3 Test purpose

To test the behaviour of the UE if the network accepts the authentication and ciphering procedure.

12.6.1.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A) in both cells.

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The SS checks the value RES sent by the UE in the AUTHENTICATION AND CIPHERING RESPONSE message.

The UE initiates a routing area updating procedure and the SS checks the value of the PS Ciphering Key Sequence Number sent by the UE in the ROUTING AREA REQUEST message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C not supported, goto step 17.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN-1
6	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
7		SS		The SS checks the RES value and starts integrity protection.
8	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
9	->		ATTACH COMPLETE	
9a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
10		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
10a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1 PS-CKSN-1
12		SS		The value of PS-CKSN is checked. Integrity protection is started.
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
14	->		ROUTING AREA UPDATE COMPLETE	
15	UE			The UE is switched off or power is removed (see ICS).
16	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
16a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
17		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)

18	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 3 to step 16a.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.6.1.1.5 Test requirements

At steps 3a and 10a the UE shall transmit an RRC CONNECTION REQUEST message with the IE "Establishment cause" set to "Registration".

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step6, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message form SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message with the RES information field set to the same value as the one produced by the authentication and ciphering algorithm in the network.

At step11, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- perform routing area updating procedure.

12.6.1.2 Authentication rejected by the network

12.6.1.2.1 Definition

12.6.1.2.2 Conformance requirement

Upon receipt of an AUTHENTICATION AND CIPHERING REJECT message, the UE shall set the PS update status to GU3 ROAMING NOT ALLOWED and shall delete the P-TMSI, P-TMSI signature, RAI and PS ciphering key sequence number stored.

The USIM shall be considered as invalid until switching off or the USIM is removed.

If the AUTHENTICATION AND CIPHERING REJECT message is received, the UE shall abort any GMM procedure, shall stop the timers T3310 and T3330 (if running) and shall enter state GMM-DEREGISTERED.

Reference

3GPP TS 24.008 clauses 4.7.7.5.

12.6.1.2.3 Test purpose

To test the behaviour of the UE if the network rejects the authentication and ciphering procedure.

12.6.1.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The test sequence is repeated for K = 1, 2.

A complete PS attach procedure is performed. The SS rejects the following authentication and ciphering procedure. The UE is paged with its IMSI and shall not respond.
The Cell is changed into a new Routing Area.

The SS checks that the UE does not perform normal routing area updating.

The SS then checks that the UE does not perform a PS detach.

The SS checks that the UE does not perform a PS Attach procedure.

Expected Sequence

The test sequence is repeated for k = 1, 2

For k =1, the UE is set in UE operation mode C. If MS operation mode C not supported then k = 2.

For k = 2 the UE is set in UE operation mode A.

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a			Void	
2b		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
4			Void	
5			Void	
6	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Set PS-CKSN-1
7	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
8	<-		AUTHENTICATION AND CIPHERING REJECT	
8a		SS		The SS releases the RRC connection and waits 5s to allow the UE to read system information.
9	<-		PAGING TYPE1	Mobile identity = IMSI Paging order is for PS services.
10	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages are sent and shall be received on cell B.
11		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
12	UE			Cell B is preferred by the MS.
13	UE			No ROUTING AREA UPDATE REQUEST sent to the SS (SS waits 30 seconds).
14	UE			The UE initiates an attach by MMI or by AT command.
15	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
16	UE			The UE is switched off (see ICS).
17	SS			No DETACH REQUEST sent to the SS (SS waits 30 seconds).
18				The UE is powered up or switched on and initiates an attach (see ICS). Step 19 is only performed for k =2
19	UE		Registration on CS	Parameter mobile identity is IMSI See TS 34.108
19a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
20	->		ATTACH REQUEST	Attach type = 'GPRS~~PS only~~ attach~~ed~~' Mobile identity = IMSI
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	
20b	->		AUTHENTICATION AND CIPHERING RESPONSE	
20c		SS		The SS starts integrity protection.
21	<-		ATTACH ACCEPT	Attach result = 'GPRS~~PS~~ only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4

22	->	ATTACH COMPLETE	
22a	SS		The SS releases the RRC connection.
23	UE		The UE is switched off or power is removed. (see ICS)
23a	SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach".
24	->	DETACH REQUEST	Message not sent if power is removed.
24a	SS		If the power was not removed, the SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off .
25	UE		If k=1 then the test is repeated for k=2.
NOTE: The definitions for "Non-Suitable celll" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.6.1.2.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE receives the AUTHENTICATION AND CIPHERING REJECT message, UE shall:

- not respond paging message for PS domain.

At step13, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- not perform normal routing area updating.

At step17, when the UE is switched off, UE shall:

- not perform PS detach procedure.

12.6.1.3 Authentication rejected by the UE

12.6.1.3.1 GMM cause 'MAC failure'

12.6.1.3.1.1 Definition

12.6.1.3.1.2 Conformance requirement

If the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'MAC failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.1.3 Test purpose

To test the behaviors of the UE, when the UE considers the MAC code (supplied by the core network in the AUTN parameter) to be invalid.

12.6.1.3.1.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

The MAC (Message Authentication Code) code, which is included in AUTHENTICATION AND CIPHERING REQUEST, is invalid value.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'MAC failure' to the SS.

The SS initiates an identification procedure, upon receipt of a failure message with reject cause 'MAC failure'.

After the identification procedure is complete, the SS re-initiates an authentication and ciphering procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note 1)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 25.
3	UE			
4				The following messages are sent and shall be received on cell A.
5	UE			The UE is powered up or switched on and initiates an attach (see ICS).
5a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
6	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobility identity = IMSI
7	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Invalid Message Authentication Code (MAC).
9	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
9a	<-		IDENTITY REQUEST	Identity type = IMSI
9b	->		IDENTITY RESPONSE	Mobile identity = IMSI
10	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CSKN-1
11	->		AUTHENTICATION AND CIPHERING RESPONSE	RES
12		SS		The SS checks the RES value and starts integrity protection.
13			Void	
14			Void	
15			Void	
16	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	
17a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
18		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note 1)
18a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
19	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1 PS-CKSN-1
20		SS		The SS checks the value of PS-CKSN and starts integrity protection.
21	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
22	->		ROUTING AREA UPDATE COMPLETE	

23 24	UE ->	DETACH REQUEST	The UE is switched off or power is removed (see ICS). Message is not sent if power is removed. Detach type = 'power switched off, GPRSPS detach'
24a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
25	UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 24.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.6.1.3.1.5 Test requirements

At step6, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information element specified in the above Expected Sequence.

At step9, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST with Invalid Message Authentication Code, UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS

At step11, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message (containing a valid MAC) from SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message to SS.

At step9b, when the UE receives the IDENTITY REQUEST message with Identity type = IMSI from SS, UE shall:

- send the IDENTITY RESPONSE message with Mobile identity = IMSI to SS.

12.6.1.3.2 GMM cause 'Synch failure'

12.6.1.3.2.1 Definition

12.6.1.3.2.2 Conformance requirement

If the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range, the UE shall send AUTHENTICATION AND CIPHERING FAILURE message with the reject cause 'Synch failure' to the System Simulator.

Reference

3GPP TS 24.008 clause 4.7.7.

12.6.1.3.2.3 Test purpose

To test the behaviors of the UE, when the UE considers the SQN (supplied by the core network in the AUTN parameter) to be out of range.

12.6.1.3.2.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

A PS attach is performed, and the SS initiates an authentication and ciphering procedure.

UE sends AUTHENTICATION AND CIPHERING FAILURE message with reject cause 'synch failure' to the SS.

SS re-initiates an authentication and ciphering procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The following messages are sent and shall be received on cell A. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note 1)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 21.
3	UE			The following messages are sent and shall be received on cell A. The UE is powered up or switched on and initiates an attach (see ICS).
3a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobility identity = IMSI
5	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. SQN is out of range.
6			Void	
7	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause = 'Synch failure' AUTS parameter
8		SS		set new authentication vectors. (re-synchronisation)
9	<-		AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CKSN-1
10	->		AUTHENTICATION AND CIPHERING RESPONSE	RES

Step	Direction		Message	Comments
	UE	SS		
11		SS		The SS checks the RES value and starts integrity protection.
12	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
13	->		ATTACH COMPLETE	
13a		SS		The SS releases the RRC connection.
				The following messages are sent and shall be received on cell B.
14		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note 1)
14a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1 PS-CKSN-1
16		SS		The SS checks the value of PS-CKSN and starts integrity protection
17	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
18	->		ROUTING AREA UPDATE COMPLETE	
19		UE		The UE is switched off or power is removed (see ICS).
20	->		DETACH REQUEST	Message is not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
20a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
21		UE		The UE is set in UE operation mode A (see ICS) and the test is repeated from step 1 to step 20.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.6.1.3.2.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information element specified in the above Expected Sequence.

At step7, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message(SQN is out of range.), UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'synch failure' to the SS

At step9, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message from SS, UE shall:

- send the AUTHENTICATION AND CIPHERING RESPONSE message to SS.

At step15, when the RF level of the attached cell is lower than the RF level of the new cell, UE shall:

- perform routing area updating procedure.

12.6.1.3.3 Authentication rejected by the UE / fraudulent network

12.6.1.3.3.1 Definition

12.6.1.3.3.2 Conformance requirement

R99 and REL-4:

1. It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occur:

   - After sending the AUTHENTICATION & CIPHERING FAILURE message with GMM cause 'MAC failure' the timer T3318 expires;

   - Upon receipt of the second AUTHENTICATION & CIPHERING REQUEST message from the network while the T3318 is running and the MAC value cannot be resolved.

   When it has been deemed by the MS that the source of the authentication challenge is not genuine (authentication not accepted by the MS), the MS shall behave as described in 3GPP 24.008 clause 4.7.7.6.1.

2. In addition to the cases specified in subclause 4.7.7.6, the UE may deem that the network has failed the authentication check after any combination of three consecutive authentication failures, regardless whether 'MAC failure', 'invalid SQN', or 'GSM authentication unacceptable' was diagnosed. The authentication failures shall be considered as consecutive only, if the authentication challenges causing the second and third authentication failure are received by the UE, while the timer T3318 or T3320 started after the previous authentication failure is running.

   If the UE deems that the network has failed the authentication check, then it shall request RR or RRC to release the RR connection and the PS signalling connection, if any, and bar the active cell or cells (see 3GPP TS 25.331 and 3GPP TS 04.18).

Reference

3GPP TS 24.008 clause 4.7.7.6 (f) and 4.7.7.6.1.

REL-5 and later releases:

1. It can be assumed that the source of the authentication challenge is not genuine (authentication not accepted by the UE) if any of the following occurs:

   - after sending the AUTHENTICATION & CIPHERING FAILURE message with GMM cause 'MAC failure' the timer T3318 expires;

   - the MS detects any combination of the authentication failures: "MAC failure", "invalid SQN", and "GSM authentication unacceptable", during three consecutive authentication challenges. The authentication challenges shall be considered as consecutive only, if the authentication challenges causing the second and third authentication failure are received by the MS, while the timer T3318 or T3320 started after the previous authentication failure is running.

   When it has been deemed by the MS that the source of the authentication challenge is not genuine (authentication not accepted by the MS), the MS shall behave as described in 3GPP TS 24.008 subclause 4.7.7.6.1.

2. If the UE deems that the network has failed the authentication check, then it shall request RR or RRC to release the RR connection and the PS signalling connection, if any, and bar the active cell or cells (see 3GPP TS 25.331 and 3GPP TS 44.018).

Reference

3GPP TS 24.008 clause 4.7.7.6 (f) and 4.7.7.6.1.

12.6.1.3.3.3 Test purpose

R99 and REL-4

To test UE treating a cell as barred:

1. when the network sends the second or third AUTHENTICATION & CIPHERING REQUEST message with invalid MAC code during the timer T3318 is running.

2. when the timer T3318 has expired.

REL-5 or later release:

To test UE treating a cell as barred:

1. when the network sends the third AUTHENTICATION & CIPHERING REQUEST message with invalid MAC code during the timer T3318 is running.

2. when the timer T3318 has expired.

12.6.1.3.3.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC1/LAC1/RAC1(RAI-1), cell B in MCC1/MNC1/LAC1/RAC2(RAI-2).
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

Two cells are configured. Cell A transmits with higher power so that the UE attempts an attach procedure to cell A.

During the attach procedure, the SS initiates an authentication and ciphering procedure but it sends an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS repeats a second time the authentication procedure, again with an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message.

For R99 and REL-4: SS waits 30 seconds. If the UE sends an AUTHENTICATION AND CIPHERING FAILURE message during this time then the the SS repeats the authentication procedure a third time and then waits 30 seconds. The UE moves into idle mode and do not make any access attempt on Cell A.

For REL-5 or later relaese: The SS repeats a third time the authentication procedure, again with an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message. The UE moves into idle mode and do not make any access attempt on Cell A.

The UE shall attempt to attach to cell B. The SS initiates an authentication and ciphering procedure but it sends an incorrect Message Authentication Code (MAC) value in its AUTHENTICATION AND CIPHERING REQUEST message. The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS waits for T3318 to expire.

The UE shall treat now both cells as barred and shall not attempt to access the network, even if the user triggers the UE to perform an attach procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note) The following messages are sent and shall be received on cell A.
2	UE			The UE is powered up or switched on and initiates an attach procedure.
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobility identity = IMSI
4	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
5	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
6	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
7	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure' R99 and REL-4: In case message is not received within 30s then SS should continue from step 9.
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC). R99 and REL-4: Optional step
7b			Void	
8		SS		SS verifies that the UE does not attempt to access the network for 30s. R99 and REL-4: Optional step
9		SS		Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
				UE shall attempt an attach on cell B. The following messages are sent and shall be received on cell B.
10	UE			The UE initiates an attach by MMI or AT command.
11	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobility identity = IMSI
12	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
13	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
14		SS		SS waits T3318 (20s)
15		SS		SS verifies that the UE does not attempt to access the network for 30s.
16	UE			The UE initiates an attach by MMI or AT command.
17		SS		SS verifies that the UE does not attempt to access the network for 30s.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.6.1.3.3.5 Test requirements

At step3, when the UE is powered on or switched on, the UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

After step4, when the UE have received the first AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

For R99 and REL-4 UE:

Alternative 1:

- After step 6, when the UE have received the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

Alternative 2:

- After step6, when the UE have received the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) while the timer T3318 is running, the UE shall send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS; and

- After step 7a , when the UE have received the third AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

For REL-5 UE:

- After step 6, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) from the network while the timer T3318 is running, the UE shall send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS; and

- After step 7a, when the UE have received the third AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall not attempt to access the network.

At step 11, when the activated cell is changed from cell A to cell B, the UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

After step 12, when the UE have received the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), the UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step 17, when the timer T3318 have expired, the UE shall:

- not attempt to access the network.

12.6.2 Void

12.7 Identification procedure

The purpose of this procedure is to check that the UE gives its identity as requested by the network. If this procedure does not work, it will not be possible for the network to rely on the identity claimed by the UE.

12.7.1 General Identification

12.7.1.1 Definition

12.7.1.2 Conformance requirement

1) When requested by the network the User Equipment shall send its IMSI.

2) When requested by the network the User Equipment shall send its IMEI as stored in the Mobile Equipment.

3) When requested by the network the User Equipment shall send its IMEISV as stored in the Mobile Equipment.

Reference

3GPP TS 24.008 clauses 4.7.8

12.7.1.3 Test purpose

To verify that the UE sends identity information as requested by the system. The following identities can be requested: IMSI, IMEI and IMEISV.

12.7.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI.

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS requests identity information from the UE:

- IMSI
- IMEI
- IMEISV

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1		SS		The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 14.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
4			Void	
5	<-		AUTHENTICATION AND CIPHERING REQUEST	
5a	->		AUTHENTICATION AND CIPHERING RESPONSE	
5b		SS		The SS starts ciphering and integrity protection.
6	<-		IDENTITY REQUEST	Identity type = IMSI
7	->		IDENTITY RESPONSE	Mobile identity = IMSI
8	<-		IDENTITY REQUEST	Identity type = IMEI
9	->		IDENTITY RESPONSE	Mobile identity = IMEI
10	<-		IDENTITY REQUEST	Identity type = IMEISV
11	->		IDENTITY RESPONSE	Mobile identity = IMEISV
11a	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
11b	->		ATTACH COMPLETE	
11c		SS		The SS releases the RRC connection.
12	UE			The UE is switched off or power is removed (see ICS).
12a		SS		SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not received if power is removed).
13	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
13a		SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
14	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 13a.

Specific message contents

None.

12.7.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 12a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the SS requests an IMSI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMSI.

At step9, when the SS requests an IMEI with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEI.

At step11, when the SS requests an IMEISV with the IDENTITY REQUEST message, UE shall:

- send the IDENTITY RESPONSE message with the Mobile identity = IMEISV.

12.8 GMM READY timer handling

12.8.1 Definition

12.8.2 Conformance requirement

If a READY timer value is received by an UE capable of both UMTS and GSM in the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, then the received value shall be stored by the UE in order to be used at an intersystem change from UMTS to GSM.

Reference

3GPP TS 24.008 clause 4.7.2.1

12.8.3 Test purpose

To verify that READY timer value received in UTRA can be used in GSM.

12.8.4 Method of test

12.8.4.1 Test procedure

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A (UTRAN) in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B (GSM) in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Cell B is in neigbour cell list of cell A.
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in cell A (UTRAN).
The value of ATT flag in SIB3 IE ìControl Channel Descriptionî is set to value ì0î in cell B (GSM).

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

UE supports both GSM/GPRS and UTRAN Radio Access Technologies Yes/No
UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs Yes/No

UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An attach is performed.

T3314; set to 60 seconds

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Cell B is switched off. (see note)
2	UE			The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C. The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 T3314 = 60 seconds T3312=6 minutes
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell".Set the cell type of cell B to the "Serving cell".
7	UE			UE establish cell reselection to GSM system The following messages are received on Cell B (GERAN)
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
9	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
10	->		ROUTING AREA UPDATE COMPLETE	
11		SS		The SS verifies that the time between the end of Step 10 and the periodic RA updating is Ready Timer Period (T3314) + Periodic Routing Area Updating timer (T3312) (+/- 10%)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updatingí Mobile identity=P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
13	<-		ROUTING AREA UPDATE ACCEPT	Update type = 'RA updated'
14	UE			UE is swithed off or power is removed (see ICS)
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.8.5 Test requirements

At step4, when the UE receives the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, UE shall:

- store the received READY timer value.

At step12, UE shall establish periodic Routing Area Update after Timer Period (T3314) + Periodic Routing Area Updating timer (T3312) (+/- 10%).

12.9 Service Request procedure (UMTS Only)

12.9.1 Service Request Initiated by UE Procedure

12.9.1.1 Definition

12.9.1.2 Conformance requirement

UE shall send the Service Request message to the network in order to establish the PS signalling connection for the upper layer signalling or for the resource reservation for active PDP context(s).

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.1

12.9.1.3 Test purpose

To test the behaviour of the UE if the UE initiates the CM layer service (e.g. SM or SMS) procedure.

12.9.1.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE in PMM-IDLE state sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receives the SERVICE REQUEST message, the SS performs authentication procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 12.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
6a	SS			The IE "Establishment cause" in the received RRC CONNECTION REQUEST message is not checked.
7	->		SERVICE REQUEST	Service type = "signalling",
8	<-		SERVICE REJECT	
9	->		Void	
9a	SS			The SS releases the RRC connection.
10	UE			The UE is switched off or power is removed (see ICS).
10a	SS			The SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST is set to "Detach" (not received if power is removed).
11	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
11a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
12	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 11a.

Specific message contents

None.

12.9.1.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 10a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, when the UE has any signalling message (e.g. for SM or SMS) that requires security protection, the UE shall:

- send the SERVICE REQUEST message with service type indicated "signalling".

12.9.2 Service Request Initiated by Network Procedure

12.9.2.1 Definition

12.9.2.2 Conformance requirement

When the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall send the SERVICE REQUEST message to the network.

Reference

TS 24.008 clauses 4.7.13

TS 23.060 clauses 6.12.2

12.9.2.3 Test purpose

To test the behavior of the UE if the UE receives the paging request for PS domain service from the network.

12.9.2.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" (to prevent repeated CS domain registration and/or IMSI Detach by UEs in operation mode A).

User Equipment:

The UE has a valid IMSI

The UE has been registered in the CS domain.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE is in PMM-IDLE state. The SS pages the UE by sending a Paging message to the UE.

b) The UE sends a SERVICE REQUEST message to the SS. Service Type specifies Paging Response. The Service Request is carried over the radio in an RRC Direct Transfer message.

c) After the SS receives the SERVICE REQUEST message from the UE, SS initiates an authentication procedure.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set to attach to PS services only (see ICS). If that is not supported by the UE, goto step 12.
2	UE			The UE is powered up or switched in and initiates an attach (see ICS).
2a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c	SS			The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services. Paging cause = "Terminating interactive call"
6a	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
7	->		SERVICE REQUEST	Service type = "Paging response"
8	<-		AUTHENTICATION AND CIPHERING REQUEST	
9	->		AUTHENTICATION AND CIPHERING RESPONSE	
9a	SS			SS starts integrity protection and releases the RRC connection.
10	UE			The UE is switched off or power is removed (see ICS).
10a	SS			SS checks that the IE "Establishment cause" in any received RRC CONNECTION REQUEST message is set to "Detach" (message not sent if power is removed).
11	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
11a	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
12	UE			The UE is set to attach to both PS and non-PS services (see ICS) and the test is repeated from step 2 to step 11a.

Specific message contents

None.

12.9.2.5 Test requirements

At step 2a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

At step 6a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Terminating interactive Call".

At step 10a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step 7, when the UE receives a paging request for PS domain from the network in PMM-IDLE mode, the UE shall:

- send the SERVICE REQUEST message with service type indicated "paging response".

12.9.3 Service Request / rejected / Illegal MS

12.9.3.1 Definition

12.9.3.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Illegal MS", the UE shall:

1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and enter state GMM DEREGISTRATED. A UE operating in MS operation A shall in addition to set the update status to U3 ROAMING NOT ALLOWED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number. A UE operating in MS operation A shall in addition delete any TMSI, LAI and ciphering key sequence number.
3) consider the USIM as invalid for PS service until switched off or the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.3.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Illegal MS".

12.9.3.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1, RAI-1 and IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

USIM removal possible without powering down Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #3(Illegal MS).

c) After the UE receives the SERVICE REJECT message with the cause value #3(Illegal MS), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

d) The SS checks that the UE does not initiate an upper-layer signalling until the power of the UE is switched off.

e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 38.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = '~~PS only attached~~GPRS only attached'
6			Void	
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "Illegal MS"
10	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
11	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds)
12	UE			The UE is switched off.
13			Void	
14	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
14a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
14b	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
15a	<-		AUTHENTICATION AND CIPHERING REQUEST	
15b	->		AUTHENTICATION AND CIPHERING RESPONSE	
15c	SS			The SS starts ciphering and integrity protection.
16	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	

Step	Direction		Message	Comments
	UE	SS		
18	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		SERVICE REJECT	Reject cause = "Illegal MS"
21	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
22	SS			The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds)
23	UE			If possible (see ICS) USIM replacement is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed
24	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
25	UE			The UE initiates a PS attach, by MMI or by AT command.
25a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
26a	<-		AUTHENTICATION AND CIPHERING REQUEST	
26b	->		AUTHENTICATION AND CIPHERING RESPONSE	
26c	SS			The SS starts ciphering and integrity protection.
27	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
28	->		ATTACH COMPLETE	
29	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	->		SERVICE REQUEST	Service type = "signalling"
31	<-		SERVICE REJECT	Reject cause = "Illegal MS"
32			VOID	
33	SS		VOID	
34	SS			The SS releases RRC connection.
35	UE			The UE is switched off or power is removed (see ICS).
36			Void	
37	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
38	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 37.

Specific message contents

None.

12.9.3.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step22, when the UE receives the SERVICE REJECT message with cause "Illegal MS" UE shall:

- not attempt to access the network.

At step26, when the UE gets the USIM replaced, is powered up or switched on,UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step30, UE shall:

- initiate the service request procedure.

12.9.4 Service Request / rejected / PS services not allowed

12.9.41 Definition

12.9.4.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "~~PS services not allowed~~GPRS services not allowed", the UE shall:

1) set the GPRS update state to GU3 ROAMING NOT ALLOWED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
3) consider the USIM as invalid for PS service until the UE is switched off or until the USIM is removed.

Reference

TS 24.008 clauses 4.7.13.4

12.9.4.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "GPRS services not allowed in this PLMN~~PS service not allowed~~".

12.9.4.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #7(~~PS services not allowed~~GPRS services not allowed).

c) After the UE receives the SERVICE REJECT message with the cause value #7(~~PS services not allowed~~GPRS services not allowed), the UE deletes any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.

d) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.

e) The SS checks that the UE does not initiate an upper-layer signalling until the USIM is removed from the UE.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 38.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = '~~PS only attached~~GPRS only attached'
6			Void	
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "~~PS services not allowed~~GPRS services not allowed"
10	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
11	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30seconds)
12	UE			The UE is switched off.
13			Void	
14	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
14a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
15	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
15a	<-		AUTHENTICATION AND CIPHERING REQUEST	
15b	->		AUTHENTICATION AND CIPHERING RESPONSE	
15c	SS			The SS starts ciphering and integrity protection.
16	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
17	->		ATTACH COMPLETE	
18	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"

Step	Direction		Message	Comments
	UE	SS		
20	<-		SERVICE REJECT	Reject cause = "~~PS services not allowed~~GPRS services not allowed"
21	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
22	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30seconds)
23	UE			The UE gets the USIM replaced, is powered up or switched on.
24			Void	
25	UE			The UE initiates a PS attach, by MMI or by AT command.
25a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
26	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
26a	<-		AUTHENTICATION AND CIPHERING REQUEST	
26b	->		AUTHENTICATION AND CIPHERING RESPONSE	
26c	SS			The SS starts ciphering and integrity protection.
27	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
28	->		ATTACH COMPLETE	
29	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
30	->		SERVICE REQUEST	Service type = "signalling"
31	<-		SERVICE REJECT	Reject cause = "~~PS services not allowed~~GPRS services not allowed"
32			VOID	
33	SS		VOID	
34	SS			The SS releases RRC connection.
35	UE			The UE is switched off or power is removed (see ICS).
36	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
37	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
38	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 37.

Specific message contents

12.9.4.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "~~PS services not allowed~~GPRS services not allowed" UE shall:

- not attempt to access the network.

At step15, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step22, when the UE receives the SERVICE REJECT message with cause "~~PS services not allowed~~GPRS services not allowed" UE shall:

- not attempt to access the network.

At step26, when the UE gets the USIM replaced, is powered up or switched on,UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step30, UE shall:

- initiate the service request procedure.

12.9.5 Service Request / rejected / MS identity cannot be derived by the network

12.9.5.1 Definition

12.9.5.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "MS identity cannot be derived by the network", the UE shall:

1) set the GPRS update states to GU2 NOT UPDATED.
2) delete any P-TMSI, P-TMSI signature, RAI and GPRS ciphering key sequence number.
3) initiate the PS attach procedure automatically.

Reference

TS 24.008 clauses 4.7.13.4

12.9.5.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "MS identity cannot be derived by the network".

12.9.5.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #9 (MS identity cannot be derived by the network).

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 23.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = '~~PS only attached~~GPRS only attached'
6			Void	
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "MS identity cannot be derived by the network"
10	UE			The UE automatically initiates the PS attach procedure.
10a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
11	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts ciphering and integrity protection.
12	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature
13	->		ATTACH COMPLETE	
14	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
15	->		SERVICE REQUEST	Service type = "signalling"
16	<-		SERVICE REJECT	
17			VOID	
18	SS		VOID	.
19	SS			The SS releases RRC connection.
20	UE			The UE is switched off or power is removed (see ICS).
21	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'

22	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
23	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 22.

Specific message contents

None.

12.9.5.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives the SERVICE REJECT message with cause "MS identity cannot be derived by the network" UE shall:

- initiate PS attach procedure automatically.

12.9.6 Service Request / rejected / PLMN not allowed

12.9.6.1 Definition

12.9.6.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "PLMN not allowed", the UE shall:

1) delete any RAI, P-TMSI, P-TMSI signature and GPRS ciphering key sequence number.
2) set the GPRS update status to GU3 ROAMING NOT ALLOWED.
3) store the PLMN identity in the appropriate forbidden list.

Reference

TS 24.008 clauses 4.7.13.4

12.9.6.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "PLMN not allowed".

12.9.6.4 Method of test

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8, Not HPLMN), cell B in MCC2/MNC1/LAC1/RAC1 (RAI-2, Not HPLMN).
All two cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells.

NB: i) Cell B will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #11 (PLMN not allowed).

c) The SS checks that the UE does not initiate an upper-layer signalling until the UE is switched off.

d) The SS checks that the UE does not answer a Page from the SS until the power of the UE is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 24.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = '~~PS only attached~~GPRS only attached'
6			Void	
7	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		SERVICE REJECT	Reject cause = "PLMN not allowed"
10	UE			The UE stores the PLMN identity in the "forbidden PLMN list".
11	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
12	SS			The SS verifies that the UE does not attempt to access the network. (SS wait 30second)
13	<-		PAGING TYPE1	Paging order is for PS service
14	UE			No response from the UE to the request. This is checked for 10 seconds.
				The following messages shall be sent and shall be received on cell B.
15	SS			Set the cell type of cell A to the "Non-Suitable cell". Set the cell type of cell B to the "Serving cell". (see note)
16	UE			Cell B is preferred by the UE.
16a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
17	UE			The UE initiates an attach automatically, by MMI or by AT command.
17a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
18	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = IMSI

18a	<-	AUTHENTICATION CIPHERING REQUEST	AND	
18b	->	AUTHENTICATION CIPHERING RESPONSE	AND	
18c	SS			The SS starts ciphering and integrity protection.
19	<-	ATTACH ACCEPT		Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2 Attach result = '~~PS only attached~~GPRS only attached'
20	->	ATTACH COMPLETE		
21	UE			The UE is switched off or power is removed (see ICS).
22	->	DETACH REQUEST		Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
23	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
24	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 23.
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.9.6.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step9, when the UE receives the SERVICE REJECT message with cause "PLMN not allowed", UE shall:

- not perform a PS attach procedure in the same PLMN.

At step13, when the UE receives the paging message for PS domain UE shall:

- not respond to the paging message for PS domain.

At step18, UE shall:

- perform PS attach procedure.

12.9.7a Service Request / rejected / No PDP context activated

12.9.7a.1 Definition

12.9.7a.2 Conformance requirement

If the network rejects a service request procedure with the cause "No PDP context activated", the UE shall:

- deactivate all active PDP contexts.

After the UE deactivates all active PDP contexts, UE shall:

- perform PDP context(s) activation.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7a.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No PDP context activated".

12.9.7a.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) After the SS receiving the SERVICE REQUEST message, the SS sends a SERVICE REJECT message with the cause value #40 (No PDP context activated).

c) After the UE receives the SERVICE REJECT message, the UE shall send the ACTIVATE PDP CONTEXT REQUEST message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1				The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 26.
2				The SS is set in network operation mode II and activates cell A.
3				The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	
6	->		ATTACH COMPLETE	
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "signalling"
9	<-		AUTHENTICATION AND CIPHERING REQUEST	
10	->		AUTHENTICATION AND CIPHERING RESPONSE	
11	SS			The SS initiates a security mode control procedure.
12	UE			After a PS call is established, the UE suspends transmission of the user data.
13	SS			The SS initiates a Radio Bearer release procedure.
14	UE			The UE resumes the transmission of the user data.
15	->		SERVICE REQUEST	Service type = "data"
16	<-		SERVICE REJECT	Reject cause = "No PDP context activated"
17	UE			The UE shall deactivate locally all active PDP contexts.
18	UE			The UE initiates a PS call, by MMI or by AT command.
19	->		SERVICE REQUEST	Service type = "signalling"
20	<-		AUTHENTICATION AND CIPHERING REQUEST	
21	->		AUTHENTICATION AND CIPHERING RESPONSE	
21	SS			SS initiates a security procedure by sending SECURITY MODE COMMAND message.
22	UE			The UE is switched off or power is removed (see ICS).
23	UE			The UE initiates Detach request, by MMI or by AT command.
24	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
25	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
26	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 25.

Specific message contents

None.

12.9.7a.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure.

When the UE receives a SERVICE REJECT message with the cause "No PDP context activated", UE shall:

- deactivate all active PDP context.

At step15, UE shall:

- initiates a Service request procedure by sending a SERVICE REJECT message with Service type = "data".

12.9.7b Service Request / rejected / No Suitable Cells In Location Area

12.9.7b.1 Definition

12.9.7b.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "No Suitable Cells In Location Area", the UE shall:

1) set the GPRS update status to GU3 ROAMING NOT ALLOWED and shall change to state GMM-REGISTERED.LIMITED-SERVICE.

2) store the LAI in the list of 'forbidden location areas for roaming'.

If no RRC connection exists, the UE shall perform the following additional actions immediately. If the UE is operating in operation mode A and an RRC connection exists, the UE shall perform these actions when the RRC connection is subsequently released:

1) if the UE is IMSI attached, the UE shall set the update status to U3 ROAMING NOT ALLOWED and shall reset the location update attempt counter. The new MM state is MM IDLE.

2) search for a suitable cell in a different location area on the same PLMN.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7b.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "No Suitable Cells In Location Area".

12.9.7b.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC2/RAC1 (RAI-3), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has valid IMSI.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform routing area updating procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note) The SS configures power level of each Cell as follows. Cell A > Cell B = Cell C
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, goto step 15.
2	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
2a	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
2b		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = "GPRS~~PS~~ attach" Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
6		SS		The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = 'signalling'
9	<-		SERVICE REJECT	Reject cause = 'No Suitable Cells In Location Area'
9a		SS		The SS releases the RRC connection The following message are sent and shall be received on cell B.
9b	UE		Registration on CS	See TS 34.108 This is applicable only for UE in UE operation mode A.
9c		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-1 signature Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
10a	<-		AUTHENTICATION AND CIPHERING REQUEST	
10b	->		AUTHENTICATION AND CIPHERING RESPONSE	
10c		SS		The SS starts ciphering and integrity protection.
11	<-		ROUTING AREA UPDATE ACCEPT	Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-3 Update result = 'RA updated'

12	->	ROUTING AREA UPDATE COMPLETE	
13	UE		The UE is switched off or power is removed (see ICS).
13a		IMSI DETACH INDICATION	Message not sent if power is removed This is applicable only for UE in UE operation mode A.
14	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
14a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
15	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 14.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.9.7b.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step10, when the UE enters a suitable cell in a different location area on the same PLMN, UE shall:

- perform the routing area updating procedure.

12.9.7c Service Request / rejected / Roaming not allowed in this location area

12.9.7c.1 Definition

12.9.7c.2 Conformance requirement

If the network rejects a service request procedure from the UE with the cause "Roaming not allowed in this location area", the UE shall:

1) set the PS update status to GU3 ROAMING NOT ALLOWED
2) store the LAI in the list of "forbidden location areas for roaming".
3) perform a PLMN selection.

Reference

TS 24.008 clauses 4.7.13.4

12.9.7c.3 Test purpose

To test the behaviour of the UE if the network rejects the service request procedure with the cause "Roaming ~~area~~ not allowed in this location area".

12.9.7c.4 Method of test

Initial condition

System Simulator:

Three cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

All three cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in all cells.

NB: i) Cell C will be mapped to Cell 4 as found in TS 34.108 clause 6.1.4.1.

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No
UE operation mode A Yes/No
UE operation mode C Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS rejects a Service request with the cause value 'Roaming not allowed in this location area'. The SS checks that the UE shall not perform PS attach procedure when the UE enters a different location area.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
		SS		The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Non-Suitable cell". Set the cell type of cell C to the "Non-Suitable cell". (see note)
2	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 19.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
3a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4		->	ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a		<-	AUTHENTICATION AND CIPHERING REQUEST	
4b		->	AUTHENTICATION AND CIPHERING RESPONSE	
4c		SS		The SS starts ciphering and integrity protection.
5		<-	ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Attach result = '~~PS only attached~~GPRS only attached' Routing area identity = RAI-1
6		SS		The SS initiates the RRC connection release.
7	UE			The UE initiates a PS call, by MMI or by AT command.
8		->	SERVICE REQUEST	Service type = "signalling"
9		<-	SERVICE REJECT	Reject cause = "roaming not allowed in this location area"
9a		SS		The SS releases the RRC connection.
10	UE			The UE performs PLMN selection.
11		SS		Set the cell type of cell A to the " Non-Suitable cell". Set the cell type of cell B to the " Serving cell". (see note)
12		SS		The SS verifies that the UE does not attempt to access the network. (SS waits 30 seconds).
13		SS		Set the cell type of cell B to the " Non-Suitable cell". Set the cell type of cell C to the " Serving cell". (see note) The following messages are sent and shall be received on cell C.
13a		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
14		->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' Mobile identity = P-TMSI-1 Old routing area identity = RAI-1
14a		<-	AUTHENTICATION AND CIPHERING REQUEST	
14b		->	AUTHENTICATION AND CIPHERING RESPONSE	
14c		SS		The SS starts integrity protection.

15	<-	ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-2
16	->	ROUTING AREA UPDATE COMPLETE	
17	UE		The UE is switched off or power is removed (see ICS).
18	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined GPRS~~PS~~ / IMSI detach'
18a	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
19	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 3 to step 18.
NOTE: The definitions for "Suitable neighbour cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.9.7c.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the combined PS attach procedure with information elements specified in the above Expected Sequence.

At step12, when the UE enters a same location area, UE shall:

- not initiate the combined PS attach procedure.

At step14, when the UE enters a different location area, UE shall:

- initiate the routing area updating procedure with information elements specified in the above Expected Sequence.

12.9.8 Service Request / Abnormal cases / Access barred due to access class control

12.9.8.1 Definition

12.9.8.2 Conformance requirement

If the UE access class X is barred, the UE shall:

1) not start Service Request procedure.

2) stay in the current serving cell.

3) applie normal cell reselection process.

If the UE access class X is granted or serving cell is changed, the UE shall:

1) start Service Request procedure.

Reference

TS 24.008 clauses 4.7.13.5.

12.9.8.3 Test purpose

To test the behavior of the UE in case of access class control (access is granted).

12.9.8.4 Method of test

Initial condition

A random access class X (0-15) is selected. The USIM is programmed with this access class X.

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode C Yes/No

UE operation mode A Yes/No

Switch off on button Yes/No

Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

The SS initiates access class X barred. A service request procedure is not performed.

The SS initiates that access class X is not barred. A service request procedure is performed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 15.
1a	UE			The UE is powered up or switched on and attempt to initiate an ATTACH. (see ICS)
2			Void	
3			Void	
4	UE			The UE automatically initiates an attach.
4a	SS			The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
5	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
5a	<-		AUTHENTICATION AND CIPHERING REQUEST	
5b	->		AUTHENTICATION AND CIPHERING RESPONSE	
5c	SS			The SS starts ciphering and integrity protection.

6	<-	ATTACH ACCEPT	Attach result = '~~PS only attached~~GPRS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
7	->	ATTACH COMPLETE	
7a	SS		The access class x is barred in cell A
8	UE		The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8a	UE		No SERVICE REQUEST sent to SS, as access class x is barred. SS waits 30 seconds
8b	SS		The access class x is not barred any more
9	->	SERVICE REQUEST	Service Type = "signalling".
10	<-	SERVICE REJECT	
11		VOID	
11a	SS		The SS releases the RRC connection.
12	UE		The UE is switched off or power is removed (see ICS).
13	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'
14	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
15	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 1a to step 14.

Specific message contents

None.

12.9.8.5 Test requirements

At step 8a, when the UE access class x is barred, UE shall:

- not perform Service Request procedure.

At step9, UE shall:

- perform Service Request procedure.

12.9.9 Service Request / Abnormal cases / Routing area update procedure is triggered

12.9.9.1 Definition

12.9.9.2 Conformance requirement

If a cell change into a new routing area occurs and the necessity of routing area update procedure is determined before the security mode control procedure is completed, the UE shall:

- abort Service request procedure.
- start routing area update procedure immediately.

Reference

TS 24.008 clause 4.7.13.5

12.9.9.3 Test purpose

To test the behavior of the UE in case of collision between Routing area update procedure and Service request procedure.

12.9.9.4 Method of test

Initial condition

System Simulator:

Two cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in both cells

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling in cell A.

b) The SS changes the conditions of cell A so that it is no longer a suitable ìServing cellî.

c) The UE aborts Service request procedure and performs Routing area updating procedure.

d) The UE re-sends the SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling, this time in cell B

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 22.
2	SS			The SS is set in network operation mode II. Set the cell type of cell A to the "Serving cell". Set the cell type of cell B to the "Suitable neighbour cell". (see note)
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = '~~PS only attached~~GPRS only attached'
6			Void	
6a	UE			The UE initiates upper-layer signalling, e.g., Activate PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling"
8	SS			The RF level of cell A is lowered until the level corresponds to that of a ìNon-suitable cellî. Note: the SS does not initiate the security mode control procedure.
9	UE			The UE aborts Service request procedure.
				The following message are sent and shall be received on cell B.
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating'
11	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
12	->		ROUTING AREA UPDATE COMPLETE	
13	UE			The UE initiates upper-layer signalling, e.g., Activate PDP Context request, either automatically or by MMI or by AT command.
14	->		SERVICE REQUEST	Service type = "signalling"
15	<-		AUTHENTICATION AND CIPHERING REQUEST	
16	->		AUTHENTICATION AND CIPHERING RESPONSE	
17	SS			The SS initiates a security mode control procedure.
18	SS			After the security mode control procedure is completed, the SS releases RRC connection.
19	UE			The UE is switched off or power is removed (see ICS).
20	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'

21	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message has been received within 1 second then the SS shall consider the UE as switched off.
22	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 21.
NOTE: The definitions for "Suitable neighbour cell", ìNon-suitable cellî and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".			

Specific message contents

None.

12.9.9.5 Test requirements

At step3, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence .

At step7, UE shall:

- perform the service request procedure.

At steps 9 and 10, after the SS sets the cell type of cell A to ìNon-suitable cellî before the security mode control procedure is completed, UE shall;

- abort the Service request procedure
- perform the routing area updating procedure.

At step14, after the UE completes the routing area updating procedure, UE shall;

- restart the Service Request procedure.

12.9.10 Service Request / Abnormal cases / Power off

12.9.10.1 Definition

12.9.10.2 Conformance requirement

When the UE in GMM-SERVICE-REQUEST-INITIATED state is switched off, UE shall:

- perform PS detach procedure.

Reference

TS 24.008 clauses 4.7.13.5

12.9.10.3 Test purpose

To test the behavior of the UE in case of collision between Service request procedure and "powered off".

12.9.10.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

The UE is switched off after initiating a Service request procedure. A PS detach is automatically performed by the UE before power is switched off.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 11.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = '~~PS only attached~~GPRS only attached'
6	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7	->		SERVICE REQUEST	Service type = "signalling"
8	UE			The UE is powered off and initiates a PS detach (with power off) by MMI or by AT command.
9	->		DETACH REQUEST	Detach type = 'power switched off, GPRS~~PS~~ detach'
10	SS			The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
11	UE			The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 10.

Specific message contents

None.

12.9.10.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step7, UE shall:

- perform the service request procedure

At step9, when the UE is switched off during the Service Request procedure, UE shall;

- abort the Service request procedure.
- perform the PS detach procedure.

12.9.11 Service Request / Abnormal cases / Service request procedure collision

12.9.11.1 Definition

12.9.11.2 Conformance requirement

Abnormal cases in the MS

The following abnormal cases can be identified:

- Procedure collision

  If the MS receives a DETACH REQUEST message from the network in state GMM-SERVICE-REQUEST-INITIATED, the GPRS detach procedure shall be progressed and the Service request procedure shall be aborted. If the cause IE, in the DETACH REQUEST message, indicated a "reattach request", the GPRS attach procedure shall be performed.

Reference

TS 24.008 clauses 4.7.13.5

12.9.11.3 Test purpose

To test the behaviour of the UE in case of collision between Service request procedure and PS detach procedure.

12.9.11.4 Method of test

Initial condition

System Simulator:

One cell operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE has a valid P-TMSI-1 and RAI-1.

Related ICS/IXIT statements

Support of PS service Yes/No

UE operation mode A Yes/No
UE operation mode C Yes/No

Switch off on button Yes/No

Test procedure

a) The UE sends a SERVICE REQUEST message to the SS in order to establish the PS signalling connection for the upper layer signalling.

b) The SS does not respond to the SERVICE REQUEST for data. Instead it sends a DETACH REQUEST message to the UE, with the Detach type IE set to value "re-attach required".

c) After the UE receives the DETACH REQUEST message, the repeats the attach procedure.

d) The UE is switched off or power is removed. If the UE is switched off it sends a DETACH REQUEST.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following message are sent and shall be received on cell A.
1	UE			The UE is set in UE operation mode C (see ICS). If UE operation mode C is not supported, go to step 17.
2	SS			The SS is set in network operation mode II and activates cell A.
3	UE			The UE is powered up or switched on and initiates an attach (see ICS). Cell A is preferred by the UE.
4	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
4a	<-		AUTHENTICATION AND CIPHERING REQUEST	
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c	SS			The SS starts ciphering and integrity protection.
5	<-		ATTACH ACCEPT	No new mobile identity assigned. P-TMSI and P-TMSI signature not included. Routing area identity = RAI-1 Attach result = '~~PS only attached~~GPRS only attached'
6			Void	
7a	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
7b	->		SERVICE REQUEST	Service type ="signalling"
7c	SS			The SS starts ciphering and integrity protection.
7d	SS			The SS initiates a Radio Bearer release procedure.
7e	UE			The UE initiates an upper-layer signalling, e.g., Active PDP Context request, by MMI or by AT command.
8	->		SERVICE REQUEST	Service type = "data"
9	SS			The SS does not respond to SERVICE REQUEST message.
10	<-		DETACH REQUEST	Detach type = "re-attach required"
10a	->		DETACH ACCEPT	
11	->		ATTACH REQUEST	Attach type = 'GPRS~~PS~~ attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c	SS			The SS starts ciphering and integrity protection.
12	<-		ATTACH ACCEPT	Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 Attach result = '~~PS only attached~~GPRS only attached'
13	->		ATTACH COMPLETE	
14	UE			The UE is switched off or power is removed (see ICS).
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS~~PS~~ detach'

16	SS		The SS releases the RRC connection. If no RRC CONNECTION RELEASE COMPLETE message have been received within 1 second then the SS shall consider the UE as switched off.
17	UE		The UE is set to attach to both the PS and non-PS services (see ICS) and the test is repeated from step 2 to step 16.

Specific message contents

None.

12.9.11.5 Test requirements

At step4, when the UE is powered on or switched on, UE shall:

- initiate the PS attach procedure with information elements specified in the above Expected Sequence.

At step11, when the UE receives a DETACH REQUEST message from the network before the Service request procedure completes, UE shall;

- repeat the attach procedure.
- retry the Service request procedure

At step 19 if the UE is switched off, UE shall:

- perform the PS detach procedure.

12.9.12 Service Request / RAB re-establishment / UE initiated / Single PDP context

12.9.12.1 Definition

12.9.12.2 Conformance requirement

The following procedures shall be performed in the MS when radio coverage is lost:

- For a PDP context using background or interactive traffic class, the PDP context is preserved even if RRC re-establishment procedures have failed.
- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink) when the RRC re-establishment procedure has failed. After coverage is regained and if the MS did not deactivate the PDP Context locally the MS should start MS-initiated PDP Context Modification procedure or the PDP Context Deactivation procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.
- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

The MS initiates the re-establishment of RABs by using the Service Request (Service Type = Data) message.

The criteria to invoke the Service request procedure are when;

b) the MS, either in PMM-IDLE or PMM-CONNECTED mode, has pending user data to be sent and no radio access bearer is established for the corresponding PDP context. The procedure is initiated by an indication from the lower layers (see 3GPP TS 24.007). In this case, the service type shall be set to "data".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.12.3 Test purpose

To verify that the UE initiates a Service request procedure due to uplink data transmission with one preserved PDP context with traffic class "Background class" after normal RRC connection release as well as when radio coverage is lost.

To verify that the radio access bearer can be re-established for the preserved PDP context, initiated by the UE.

12.9.12.4 Method of test

Initial condition

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service Yes/No

Test procedure

a) A PDP context with traffic class "Background class" is activated including the radio access bearer.

b) The SS releases the RRC connection, but keeps the PDP context.

c) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

d) The SS responds with a SERVICE ACCEPT message and establishes the RAB for the active PDP context using a Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

e) The SS configured the cell as a non-suitable "Off" cell for 4 minutes, making the UE to release the RAB and enter idle mode due to that radio coverage is lost.

f) The SS configures the cell as a serving cell.

g) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

h) The SS responds with a SERVICE ACCEPT message and establishes the RAB for the active PDP context using a Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3		SS		The SS starts ciphering and integrity protection and establishes the radio access bearer.
4	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5		SS		The SS releases the RRC connection
6	UE			The UE initiates transmission of uplink data, by MMI or by AT command.
7		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Background Call".
8	→		SERVICE REQUEST	Service type = "data"
9		SS		The SS starts ciphering and integrity protection.
10		SS		The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.
11		SS		The SS configures the cell as a non-suitable "Off" cell and waits for 4 minutes, making the UE to release the RAB and enter idle mode.
12		SS		The SS configures the cell as a serving cell.
13	UE			The UE initiates transmission of uplink data, by MMI or by AT command.
14		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Background Call".
15	→		SERVICE REQUEST	Service type = "data"
16		SS		The SS starts ciphering and integrity protection.
17		SS		The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.

Specific message contents

None.

12.9.12.5 Test requirements

After steps 7 and 14, UE shall:

- transmit a SERVICE REQUEST message with service type "data"

12.9.13 Service Request / RAB re-establishment / UE initiated / multiple PDP contexts

12.9.13.1 Definition

12.9.13.2 Conformance requirement

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.

- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

The MS initiates the re-establishment of RABs by using the Service Request (Service Type = Data) message.

The criteria to invoke the Service request procedure are when;

b) the MS, either in PMM-IDLE or PMM-CONNECTED mode, has pending user data to be sent and no radio access bearer is established for the corresponding PDP context. The procedure is initiated by an indication from the lower layers (see 3GPP TS 24.007). In this case, the service type shall be set to "data".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.13.3 Test purpose

To verify that the UE initiates a Service request procedure due to uplink data transmission with two PDP contexts with different traffic classes are activated, when one is of traffic class "background class" and the other is of traffic class "interactive class", after normal RRC connection release.

To verify that the radio access bearers can be re-established with a single radio bearer establishment procedure for the preserved PDP contexts, when initiated by the UE.

12.9.13.4 Method of test

Initial condition

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service	Yes/No
Secondary PDP context activation procedure	Yes/no

Test procedure

a) Two PDP contexts with different Traffic Classes are activated including the radio access bearers.

b) The SS releases the RRC connection, but keeps the two PDP contexts.

c) Due to transmission of uplink data, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

d) The SS responds with a SERVICE ACCEPT message and establishes the RABs for the two active PDP contexts using a single Radio bearer establishment procedure and the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3		SS		The SS starts ciphering and integrity protection and establishes the radio access bearer.
4	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5	UE			Initiate a secondary PDP context activation
6	→		ACTIVATE SECONDARY PDP CONTEXT REQUEST	Request a Secondary PDP context activation with traffic class "Interactive class"
7		SS		The SS establishes the radio access bearer.
8	←		ACTIVATE SECONDARY PDP CONTEXT ACCEPT	Accept the Secondary PDP context activation
9		SS		The SS releases the RRC connection.
10	UE			The UE initiates transmission of uplink data, by MMI or by AT command.
11		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Originating Interactive Call", which is the most demanding traffic class among the active PDP contexts.
12	→		SERVICE REQUEST	Service type = "data"
13		SS		The SS starts ciphering and integrity protection.
14		SS		The SS establishes the radio access bearers simultaneously for the two active PDP contexts, using the same QoS that was used at activation.

Specific message contents

None.

12.9.13.5 Test requirements

After step 11, UE shall:

- transmit a SERVICE REQUEST message with service type "data".

12.9.14 Service Request / RAB re-establishment / Network initiated / single PDP context

12.9.14.1 Definition

12.9.14.2 Conformance requirement

The following procedures shall be performed in the MS when the RRC layer indicate to higher layer that a RAB has been released and the RAB release was not initiated due to a PDP Context Deactivation Procedure:

- For a PDP context using background or interactive traffic class, the PDP context is be preserved with no modifications.

- For a PDP context using streaming or conversational traffic class, the PDP context is preserved, but the maximum bit rate is downgraded to 0 kbit/s (for both uplink and downlink).

At this point or at a later stage, the MS may start a PDP Context Deactivation procedure or PDP Context Modification procedure. The MS shall use the PDP Context Modification procedure to re-activate the PDP context and re-establish the RAB.

The procedure for re-establishment of RABs allows the SGSN to re-establish RABs for active PDP contexts that don't have an associated RAB.

When RABs for an MS that has no RRC connection needs to be re-established, the CN must first page the MS.

The criteria to invoke the Service request procedure are when;

c) the MS receives a paging request for PS domain from the network in PMM-IDLE mode. In this case, the service type shall be set to "paging response".

After completion of a Service request procedure, the pending service is resumed and uses then the connection established by the procedure. If the service type is indicating "data", then the radio access bearers for all activated PDP contexts are re-established by the network, except for those activated PDP contexts having maximum bit rate value set to 0 kbit/s for both uplink and downlink. The re-establishment of radio access bearers for those PDP contexts is specified in subclause 6.1.3.3 of 3GPP TS 24.008.

Reference

TS 23.060 clause 9.2.3.4-5, 9.2.5.2

TS 24.008 clause 4.7.13

12.9.14.3 Test purpose

To verify that the radio access bearers can be re-established for the preserved PDP context with traffic class "Background class", when initiated from the network, after normal RRC connection release.

12.9.14.4 Method of test

System Simulator:

One cell, default parameters.

The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00".

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

Support of PS service Yes/No

Test procedure

a) A PDP context with traffic class "Background class" is activated including the radio access bearer.

b) The SS releases the RRC connection, but keeps the PDP context.

c) The SS initiates paging of the UE.

d) As response to the paging, the UE initiates an RRC connection establishment and sends a SERVICE REQUEST.

e) The SS responds with a SERVICE ACCEPT message and establishes the RAB for the active PDP context using the same QoS as previously, without the need for PDP context modification.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			Initiate a PDP context activation
2	→		ACTIVATE PDP CONTEXT REQUEST	Activate a PDP context with traffic class "Background class"
3		SS		The SS starts ciphering and integrity protection and establishes the radio access bearer.
4	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context
5		SS		The SS releases the RRC connection.
6		SS		The SS waits for 5 s to ensure the UE is in service.
7	←		PAGING TYPE 1	The SS initiates paging of the UE using the paging cause "Terminating Background Call"'
8		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to the same value as the paging cause.
9	→		SERVICE REQUEST	Service type = "Paging response"
10		SS		The SS starts ciphering and integrity protection.
11		SS		The SS establishes the radio access bearer for the active PDP context, using the same QoS that was used at activation.

Specific message contents

None.

12.9.14.5 Test requirements

After step 8, UE shall:

- transmit a SERVICE REQUEST with service type "Paging response"

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Agenda 8.8.3

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 1023 ⌘ **rev** - ⌘ Current version: 5.9.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to GCF P3 Test Case 8.4.1.29
Source:	⌘	Panasonic and Anritsu Ltd
Work item code:	⌘	N/A
Date:	⌘	03/11/04
Category:	⌘	**D**
Release:	⌘	REL - 5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In the specific message content for Measurement Report (Step 3, step 4, step 4d and step 4e) (FDD and TDD), the wording in the comments is incorrect. This was found during the test case validation.
Summary of change:	⌘	Corrections made to the wording in the comments.
Consequences if not approved:	⌘	The prose will be inconsistent with the TTCN, 34.123-3.

Clauses affected:	⌘	8.4.1.29.4 MEASUREMENT REPORT (Step 3, step 4, step 4d and step 4e) (FDD and TDD)			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	34.123-3 ATS
		☐ / X	Test specifications		
		☐ / X	O&M Specifications		
Other comments:	⌘	This is an approved test cases and no TTCN change will be required.			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.4.1.29 Measurement Control and Report: Event based Traffic Volume measurement in CELL_FACH state.

8.4.1.29.1 Definition

8.4.1.29.2 Conformance requirement

Upon reception of a MEASUREMENT CONTROL message the UE shall perform actions specified in TS 25.331 subclause 8.6 unless otherwise specified below.
The UE shall:

1> read the IE "Measurement command";

1> if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

2> for measurement types "inter-RAT measurement" or "inter-frequency measurement":

Ö

2> for measurement type "UE positioning measurement":

Ö

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

Ö
For traffic volume measurements in the UE only one quantity is compared with the thresholds. This quantity is Transport Channel Traffic Volume (which equals the sum of Buffer Occupancies of RBs multiplexed onto a transport channel) in number of bytes. Every TTI, UE measures the Transport Channel Traffic Volume for each transport channel and compares it with the configured thresholds. If the monitored Transport Channel Traffic Volume exceeds an absolute threshold, i.e. if TCTV>Reporting threshold, this is an event (event 4a) that could trigger a report. The corresponding report specifies at least which measurement ID the event that triggered the report belongs to.
In CELL_FACH state, the UE shall:

1> transmit a MEASUREMENT REPORT message on the uplink DCCH when the reporting criteria stored in variable MEASUREMENT_IDENTITY are met for any ongoing traffic volume measurement or UE positioning measurement that is being performed in the UE;

1> include a measurement report in the IE "Measured results on RACH", as specified in the IE "Intra-frequency reporting quantity for RACH reporting" and the IE "Maximum number of reported cells on RACH" in System Information Block type 12 (or "System Information Block Type 11" if "System Information Block Type 12" is not being broadcast);

1> include in the IE "Measured results on RACH" all requested reporting quantities for cells for which measurements are reported.

Reference

3GPP TS 25.331, clause 14.4.2.1, 3GPP TS 25.331, clause 8.4.1.3, 8.4.2.2.

8.4.1.29.3 Test Purpose

1. To verify that in CELL_FACH state when event 4a triggered at TVM set up UE sends Measurement Report with correct measurement identity and indication of UL transport channel type, radio bearer identities and corresponding RLC buffer payloads in number of bytes.

2 To verify that in CELL_FACH state when event 4a triggerreds after TVM set up UE sends Measurement Report with correct measurement identity and indication of UL transport channel type, radio bearer identities and corresponding RLC buffer payloads in number of bytes.

3. To confirm that the UE sends MEASUREMENT REPORT message, with measurement report in IE "Measurement results on RACH" as specified in System Information Block type 12.

8.4.1.29.4 Method of test

Initial Condition

System Simulator: 1 cell
UE: Idle state (State 3 or State 7) as specified in clause 7.4 of TS 34.108.
System Information Block type 11 or 12 does not include Traffic Volume measurement system information.

Test Procedure

The UE is brought to the CELL_FACH state after a successful incoming call attempt. The SS follows the procedure in TS 34.108 clause 7.1.3 (Mobile Terminated), to set up a user RAB, but with the default RAB replaced by the one described in 34.108, clause 6.10.2.4.3.2(for FDD) , clause 6.10.3.4.4.2(for 3.84 Mcps TDD), or clause 6.11.5.4.4.2(for 1.28 Mcps TDD): Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH for DL and 6.10.2.4.4.1: Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH (for FDD) , 6.10.2.4.4.1: Interactive/Background 12.8 kbps PS RAB + SRB for CCCH + SRB for DCCH (for 3.84 Mcps TDD), or clause 6.11.5.4.5.2 Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRBs for DCCH for UL(for 1.28Mcps TDD) for DL. The radio bearer is placed into UE test loop mode 1 described in 34.109 clause 5.3. The System Information Block type 12 is modified compared to the default settings so that CPICH RSCP (for FDD) or P-CCPCH RSCP (for TDD) is reported for intra-frequency reporting when transmitting RACH messages. After this modification, SS configures transport channel traffic volume so as to exceed threshold and then sends to UE MEASUREMENT CONTROL message, which includes traffic volume measurement control parameters e.g. uplink transport channel type and reporting threshold. Transport channel traffic volume exceeds threshold and after 'time to trigger' UE sends MEASUREMENT REPORT to SS. SS does not respond and after 'pending time after trigger' UE sends the same MEASUREMENT REPORT again. SS configures UE's transport channel load decreases to zero and UE sends no MEASUREMENT REPORT message. SS configures transport channel traffic volume so as to exceed threshold again and after 'time to trigger' UE sends MEASUREMENT REPORT message to SS. After 'pending time after trigger' UE sends again same MEASUREMENT REPORT message. SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PAGING TYPE1	The SS transmits the message, which includes a allocated identity (P-TMSI).
1a	→		RRC CONNECTION REQUEST	
1b	←		RRC CONNECTION SETUP	
1c	→		RRC CONNECTION SETUP COMPLETE	
1d	→		SERVICE REQUEST	
1e	←		AUTHENTICATION AND CIPHERING REQUEST	
1f	→		AUTHENTICATION AND CIPHERING RESPONSE	
1g	←		SECURITY MODE COMMAND	
1h	→		SECURITY MODE COMPLETE	
1i	←		ACTIVATE RB TEST MODE	TC
1j	→		ACTIVATE RB TEST MODE COMPLETE	
1k	←		RADIO BEARER SETUP	RRC RAB SETUP See specific message contents for this message
1l	→		RADIO BEARER SETUP COMPLETE	
1m	←		CLOSED UE TEST LOOP	TC UE Test Loop Mode1
1n	→		CLOSED UE TEST LOOP COMPLETE	TC
1o	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 12	System Information Block type 12 is different from the default settings (see specific message contents)
1p	←		SYSTEM INFORMATION CHANGE INDICATION	To notify the modification of SYSTEM INFORMATION BLOCK TYPE 12, this message Is transmitted.
1q				SS configures transport channel traffic volume so as to exceed threshold.
1q				SS configures transport channel traffic volume so as to exceed threshold.
2	←		MEASUREMENT CONTROL	SS provides Traffic Volume measurement criterias to UE.
3	→		MEASUREMENT REPORT	UE reports that Traffic Volume measurement event 4A is triggered.
4	→		MEASUREMENT REPORT	UE repeats message after 1100 ms.
4a				SS configures UE's transport channel load decreases to zero
4b				SS receive no MEASUREMENT REPORT message.
4c				SS configures transport channel traffic volume so as to exceed threshold
4d	→		MEASUREMENT REPORT	UE reports that Traffic Volume measurement event 4A is triggered.
4e	→		MEASUREMENT REPORT	UE repeats message after 1100 ms.
5	←→		CALL C.2	If the test result of C.2 indicates that UE is in CELL_FACH state, the test passes, otherwise it fails.

Specific Message Content

PAGING TYPE 1 (Step 1)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
CHOICE Used paging identity	CN identity
- Paging cause	Terminating Call with one of the supported services
- CN domain identity	PS Domain
- CHOICE UE Identity	P-TMSI
- p-TMSI	Allocated identity during the attach procedure.
BCCH modification info	Not Present

RRC CONNECTION REQUEST (Step 1a)

Information Element	Value/remark
Message type	
Initial UE identity	Same as the IMSI stored in the TEST USIM card, or the registered TMSI or P-TMSI
Establishment Cause	Check to see if it is set to the same value as "Paging Cause" IE in the PAGING TYPE 1 message transmitted on step 1
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

System Information Block type 12 (Step 1o) (FDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 4
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency cell id	4
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	TRUE
- CHOICE mode	FDD
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as used for cell 5
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- Measurement quantity	CPICH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- Reporting quantity	CPICH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE

- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	FALSE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1a
- Triggering condition 1	Not Present
- Triggering condition 2	Monitored set cells
- Reporting Range Constant	15 dB
- Cells forbidden to affect reporting range	Not Present
- W	0.0
- Hysteresis	1.0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	0
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds
- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 1o) (1.28 Mcps TDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE TDD option	1.28 Mcps TDD
- Cell parameters ID	Set to same Cell parameters ID as used for cell 1
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- CHOICE mode	TDD
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present
- Hysteresis	1.0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds

- Reporting Cell Status - CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

System Information Block type 12 (Step 1o) (3.84 Mcps TDD)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell selection and reselection quality measure	CPICH RSCP
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	5
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0 dB
- Reference time difference to cell	Not present
- Read SFN Indicator	FALSE
- CHOICE mode	TDD
- Primary CCPCH Info	
- CHOICE TDD option	3.84 Mcps TDD
- Cell parameters ID	Set to same Cell parameters ID as used for cell 1
- Primary CCPCH TX power	Not Present
- Timeslot list	Not Present
- Cell selection and Re-selection info	Not present
- Intra-frequency Measurement quantity	
- Filter Coefficient	Not Present
- CHOICE mode	TDD
- Measurement quantity	P-CCPCH RSCP
- Intra-frequency measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- CHOICE mode	TDD
- Reporting quantity	P-CCPCH RSCP
- Maximum number of reported cells on RACH	Current cell
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CHOICE mode	TDD
- Timeslot ISCP reporting indicator	FALSE
- Proposed TGSN reporting indicator	FALSE
- Primary CCPCH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for detected set cells	Not present
- Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged mode RLC
- Periodic Reporting/Event Trigger Reporting Mode	Event trigger
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each event	
- Intra-frequency event identity	1g
- Triggering condition 1	Not Present
- Triggering condition 2	Not Present
- Reporting Range Constant	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present
- Hysteresis	1.0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	60 ms
- Amount of reporting	Infinity
- Reporting interval	16 seconds

- Reporting Cell Status	
- CHOICE reported cell	Report cells within active and/or monitored set on used frequency or within virtual active and/or monitored set on non-used frequency
- Maximum number of reported cells	2
- Inter-frequency measurement system information	Not Present
- Traffic volume measurement system information	Not Present

MASTER INFORMATION BLOCK (Step 1o)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception:

Information Element	Value/remark
MIB Value tag	2

SYSTEM INFORMATION CHANGE INDICATION (Step 1p)

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value Tag	2
BCCH Modification time	Not Present

MEASUREMENT CONTROL (Step 2)

Information Element	Value/remark
Measurement Identity	15
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	Event Trigger
Additional measurements list	Not Present
CHOICE measurement type	Traffic volume measurement
- Traffic volume measurement object	
- Uplink transport channel type	RACH
- Traffic volume measurement quantity	
- Measurement quantity	RLC buffer payload
- Traffic volume reporting quantity	
- RLC Buffer Payload for each RB	TRUE
- Average of RLC Buffer Payload for each RB	FALSE
- Variance of RLC Buffer Payload for each RB	FALSE
- Measurement validity	
- UE state	All states except CELL_DCH
CHOICE report criteria	Traffic volume measurement reporting criteria
- Parameters sent for each transport channel	
- Parameters required for each event	
- Traffic volume event identity	4a
- Reporting threshold	8
- Time to trigger	100
- Pending time after trigger	1000
- Tx interruption after trigger	250

MEASUREMENT REPORT (Step 3, step 4, step 4d and step 4e) (FDD)

The order in which the RBs are reported is not checked.

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Traffic volume measured results list"
- Traffic volume measurement results	
- RB Identity	1
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	2
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	3
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	4
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	20
- RLC Buffers Payload	Check to see if the value is above the threshold
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
Measured Results on RACH	
- Measurement result for current cell	Check to see if set to 'CPICH RSCP'
- CHOICE measurement quantity	~~Checked to see if set to within an acceptable range.~~
- CPICH RSCP	Checked to see if this IE is ~~absent~~present and within the acceptable range
Additional Measured results	Not checked
Event Results	
- Uplink transport channel type causing the event	Check to see if set to "RACH"
- UL transport channel identity	Check ~~to see that is not set~~that this IE is absent
- Traffic volume event identity	Check to see if set to "4a"

MEASUREMENT REPORT (Step 3, step 4, step 4d and step 4e) (1.28 Mcps TDD)

Information Element	Value/remark
Measurement identity	Check to see if set to 15
Measured Results	
- CHOICE measurement	Check to see if set to "Traffic volume measured results list"
- Traffic volume measurement results	
- RB Identity	1
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	2
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	3
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	4
- RLC Buffers Payload	Check to see if this IE is present
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
- RB Identity	20
- RLC Buffers Payload	Check to see if the value is above the threshold
- Average of RLC Buffer Payload	Check to see if this IE is absent
- Variance of RLC Buffer Payload	Check to see if this IE is absent
Measured Results on RACH	
- Measurement result for current cell	
- CHOICE mode	Check to see if set toíTDDí
- Primary CCPCH RSCP	Checked to see if this IE is present and the value is within an acceptable range~~Checked to see if this IE is absent~~
- Measurement results for monitored cells	
- CHOICE mode	Check to see if set toíTDDí
- Primary CCPCH RSCP	Checked to see if this IE is absent~~Checked to see if this IE is present and the value is within an acceptable range~~
Additional Measured results	Not checked
Event Results	
CHOICE event result	Check to see if set toíTraffic volume measurement event resultsí
- Uplink transport channel type causing the event	Check to see if set to "RACH"
- UL transport channel identity	Check to see that is not set
- Traffic volume event identity	Check to see if set to "4a"

8.4.1.29.5 Test Requirement

In step 3 UE sends MEASUREMENT REPORT with correct measurement identity indication. RB identity and RLC buffers payload has reasonable values. The IE "measured results on RACH", containing the measurement value for cell 1's CPICH RSCP (for FDD) or P-CCPCH RSCP (for TDD) shall be included in this message.
In step 4, 4d and 4e UE repeats message sent in step 3.
After step 3 UE is not allowed to send user data during the 'Tx interruption after trigger' timer is running.

3GPP TSG-T1 Meeting #25
Malta, 1- 5 November 2004

Tdoc ⌘T1-041954
Agenda 8.8.4

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1024** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	New test cases for Location updating / periodic search for HPLMN or higher priority PLMN when in VPLMN
Source:	⌘	Motorola
Work item code:	⌘	TEI
Date:	⌘	22/10/2004
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Lack of test coverage for periodic search of HPLMN or higher priority PLMN when camped on a VPLMN in a foreign country.
Summary of change:	⌘	New test cases added: 9.4.5.4.4 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country ñ higher priority/UE is in automatic mode. 9.4.5.4.5 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country ñ lower priority/UE is in automatic mode. 9.4.5.4.6 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country ñ List of EPLMN contain HPLMN/UE is in automatic mode.
Consequences if not approved:	⌘	No test coverage for scenarios covering periodic search of HPLMN or higher priority PLMN when camped on a VPLMN in a foreign country.

Clauses affected:	⌘	9.4.5.4.4, 9.4.5.4.5, 9.4.5.4.6
Other specs affected:	⌘	Y / N ☐ / X Other core specifications X / ☐ Test specifications ☐ / X O&M Specifications
	⌘	34.123-2
Other comments:	⌘	This CR applies to R99 and later releases Equivalent test cases in TS 51.010-1 - 26.7.4.5.4.4 and 26.7.4.5.4.5 and 26.7.4.5.4.6

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

9.4.5.4.4 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country ñ higher priority/UE is in automatic mode.

9.4.5.4.4.1 Definition

9.4.5.4.4.2 Conformance requirement

A UE in Automatic Mode shall make periodic attempts to look for a higher priority PLMN of the same country as the currently received PLMN.

References

TS 22.011 clause 3.2.2.5

9.4.5.4.4.3 Test purpose

To verify that the UE selects the highest priority network if the HPLMN/higher priority PLMN Search is performed, when a UE is receiving foreign countryís VPLMN and UE is in automatic mode.

9.4.5.4.4.4 Method of test

Initial conditions

- System Simulator:
- Three cells A, B and C, belonging to different location areas with location identification a, b and c. Cell A shall be a cell of the HPLMN, Cell B shall be a cell of the VPLMN with a different Mobile Country Codes that of Cell A and Cell C shall be a cell of a higher priority VPLMN but of the same Mobile Country Code as Cell B. Initially Cell A and Cell C shall not be broadcasting. IMSI attach/detach is not allowed on any cell.
- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted". The PLMN Selector on the USIM shall contain entries for both PLMNs of Cell B and Cell C, where PLMN C is of a higher priority than PLMN B.

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell B shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. The MS is in automatic selection mode. Cell A and Cell C are made available. It is verified that the MS does not attempt to perform a location update on Cell A. It is verified that the MS does perform a location update on Cell C.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
1		SS		The following messages shall be sent and received on Cell B. Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "Serving cell". Set the cell type of Cell C to the "non-suitable cell". (see note)
1a		UE		The UE is switched on by either using the Power Switch or by applying power.
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
4	←		AUTHENTICATION REQUEST	
5	→		AUTHENTICATION RESPONSE	
6		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	
8		SS		The SS releases the RRC connection.
9		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
10		SS		The SS waits a period of 6 minutes. During this time no messages shall be received on Cell A but the following messages are received on Cell C.
11	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
12		SS		The SS starts integrity protection.
13	←		LOCATION UPDATING ACCEPT	
14		SS		The SS releases the RRC connection.
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.5.4.4.5 Test requirement

1. At step 10, the UE shall not send any LOCATION UPDATING REQUEST on Cell A.

2. At step 11, the UE shall send a LOCATION UPDATING REQUEST message on Cell C.

9.4.5.4.5 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country ñ lower priority/UE is in automatic mode.

9.4.5.4.5.1 Definition

9.4.5.4.5.2 Conformance requirement

A UE in Automatic Mode shall make periodic attempts to look for a higher priority PLMN of the same country as the currently received PLMN. The MS shall not select a lower priority PLMN of the same country as the currently received PLMN.

References

TS 22.011 clause 3.2.2.5

9.4.5.4.5.3 Test purpose

To verify that the UE remains on the highest priority network if the HPLMN/higher priority PLMN Search is performed, when a UE is receiving foreign countryís VPLMN and UE is in automatic mode.

9.4.5.4.5.4 Method of test

Initial conditions

- System Simulator:
- Three cells A, B and C, belonging to different location areas with location identification a, b and c. Cell A shall be a cell of the HPLMN, Cell B shall be a cell of the VPLMN with a different Mobile Country Codes that of Cell A and Cell C shall be a cell of a lower priority VPLMN but of the same Mobile Country Code as Cell B. Initially Cell A and Cell C shall not be broadcasting. IMSI attach/detach is not allowed on any cell.
- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted". The PLMN Selector on the USIM shall contain entries for both PLMNs of Cell B and Cell C, where PLMN B is of a higher priority than PLMN C.

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell B shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. The MS is in automatic selection mode. Cell A and Cell C are made available. It is verified that the MS does not attempt location update either on Cell A or Cell C.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell B.
1		SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "Serving cell". Set the cell type of Cell C to the "non-suitable cell". (see note)
1a	UE			The UE is switched on by either using the Power Switch or by applying power.
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
4	←		AUTHENTICATION REQUEST	
5	→		AUTHENTICATION RESPONSE	
6		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	
8		SS		The SS releases the RRC connection.
9		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
10		SS		The SS waits a period of 6 minutes. During this time no messages shall be received on Cell A and Cell C.

NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".

Specific message contents

None.

9.4.5.4.5.5 Test requirement

1. At step 10, the UE shall not send any LOCATION UPDATING REQUEST on Cell A or Cell C.

9.4.5.4.6 Location updating/periodic search of the higher priority PLMN, VPLMN in a foreign country ñ List of EPLMN contain HPLMN /UE is in automatic mode.

9.4.5.4.6.1 Definition

9.4.5.4.6.2 Conformance requirement

A UE in Automatic Mode shall make periodic attempts to look for a higher priority PLMN of the same country as the currently registered PLMN. For the ranking of PLMNs the UE shall use the order used in subclause 3.2.2.2. In the case that the MS has stored a list of equivalent PLMNs, the UE shall only select a PLMN if it has a higher priority than all the PLMNs, in the list of equivalent PLMNs, which are of the same country as the currently registered PLMN

The Mobile Equipment stores a list of "equivalent PLMNs". This list is replaced or deleted at the end of each location update procedure, routing area update procedure and GPRS attach procedure. The stored list consists of a list of equivalent PLMNs as downloaded by the network plus the PLMN code of the network that downloaded the list. All PLMNs in the stored list are regarded as equivalent to each other for PLMN selection, cell selection/re-selection and handover.

References

TS 22.011 clause 3.2.2.5
TS 23.122 clause 4.4.3

9.4.5.4.6.3 Test purpose

To verify that, in automatic mode, when registered on a VPLMN of a country different to itís HPLMN, the MS only selects the highest priority network available from upon those of the same country as the serving PLMN. It also verifies that the MS does not take into account PLMNs, including the HPLMN, which are included in the Equivalent PLMN list.

9.4.5.4.6.4 Method of test

Initial conditions

- System Simulator:
- Three cells A, B and C, belonging to different location areas with location identification a, b and c. Cell A shall be a cell of the HPLMN, Cell B shall be a cell of the VPLMN with a different Mobile Country Codes that of Cell A and Cell C shall be a cell of a higher priority VPLMN but of the same Mobile Country Code as Cell B. Initially Cell A and Cell C shall not be broadcasting. IMSI attach/detach is not allowed on any cell.
- User Equipment:
  - the UE is switched off. The HPLMN Search Period on the USIM shall be set to 6 minutes. The location area information on the USIM is "deleted". The PLMN Selector on the USIM shall contain entries for both PLMNs of Cell B and Cell C, where PLMN C is of a higher priority than PLMN B.

Related ICS/IXIT statements

Switch on/off button Yes/No.

Test Procedure

Only Cell B shall be broadcasting. The UE shall be switched on either by using the Power Switch or by applying power. A normal location updating is performed on Cell B. During the location update procedure Cell B sends an equivalent PLMN list which includes the HPLMN (Cell A). The MS is in automatic selection mode. The MS receives and store the equivalent PLMN list. Cell A and Cell C are made available. It is verified that the MS does not attempt to perform a location update on Cell A. It is verified that the MS does perform a location update on Cell C.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
				The following messages shall be sent and received on Cell B.
1		SS		Set the cell type of Cell A to the "non-suitable cell". Set the cell type of Cell B to the "Serving cell". Set the cell type of Cell C to the "non-suitable cell". (see note)
1a		UE		The UE is switched on by either using the Power Switch or by applying power.
2		SS		The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
4	←		AUTHENTICATION REQUEST	
5	→		AUTHENTICATION RESPONSE	
6		SS		The SS starts integrity protection.
7	←		LOCATION UPDATING ACCEPT	EPLMN list containing HPLMN (Cell A)
8		SS		The SS releases the RRC connection.
9		SS		Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "Suitable neighbour cell". (see note)
10		SS		The SS waits a period of 6 minutes. During this time no messages shall be received on Cell A but the following messages are received on Cell C.
11	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
12		SS		The SS starts integrity protection.
13	←		LOCATION UPDATING ACCEPT	
14		SS		The SS releases the RRC connection.
NOTE: The definitions for "Serving cell", "Suitable neighbour cell" and "non-suitable cell" are specified in TS 34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

9.4.5.4.6.5 Test requirement

1. At step 10, the UE shall not send any LOCATION UPDATING REQUEST on Cell A.

2. At step 11, the UE shall send a LOCATION UPDATING REQUEST message on Cell C.

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041955

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 1025 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	Update of HSDPA radio bearer test cases 14.6.1 and 14.6.2
Source:	⌘	Ericsson, NTT DoCoMo, Qualcomm, NEC
Work item code:	⌘	HSDPA
Date:	⌘	31/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change: ⌘

In the current test procedure for HSDPA radio bearer test cases all possible TFRCs are repeated for each sub-test. The total number of TFRCs are between 620 and 1890 dependent on the UE category. For the radio bearer test case 14.6.2 the total number of test points, depending on UE category, are between 3100 to 9450. This CR proposes an alternative test procedure where only one TFRCs per type of modulation and number of MAC-d PDUs are tested. This approach would be more representative for live networks and will reduce the number of considerably. With this approach the total number of test points for test case 14.6.2 will be reduced, depending on UE category, to 35 to 409.

Further rationale for this CR can be found in T1-041599.

To enable the reduction of test points without sacrificing test coverage for the MAC-hs transport blocks size selection functionality a new MAC-hs test case is proposed in T1-041594.

Summary of change: ⌘

1. Generic test procedure in sub-clause 14.1.3 updated to only verify one TFRC per modulation and number of MAC-d PDU sizes.
2. New sub-clause 14.1.3.2 added to describe the principle for selecting TFRC test points.
3. New sub-clauses 14.1.3.3 and 14.1.3.4 added specifying the TFRC test points for different UE categories and MAC-d PDU sizes 336 and 656.
4. Test cases 14.6.1 and 14.6.2 updated to be aligned with new test procedure.
5. Changes merged from T1-041655 from NEC:
   Editorial corrections (transport formats in test requirement of 14.6.1 and 14.6.2)

Consequences if not approved:	⌘	Redundant testing remains.

Clauses affected:	⌘				
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘	Changes introduced in the merge of T1-041600 and T1-041655 into T1-041955 are color coded in yellow.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of first modified section>

14.1.3 General information interoperability radio bearer tests for HS-DSCH

14.1.3.1 HS-DSCH ~~R~~radio bearer test parameters ~~for UE categories~~

In the radio bearer tests on radio bearers mapped on HS-DSCH, the following UE specific parameters should be used.

Table 14.1.3.1.1: FDD HS-DSCH physical layer and RLC and MAC-hs parameters for FDD HS-DSCH physical layer categories

HS-DSCH category	Maximum number of HS-DSCH codes received	Minimum inter-TTI interval	Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTI	Total number of soft channel bits	Supported modulation	Maximum number of AM RLC entities	Minimum total RLC AM and MAC-hs buffer size [kBytes]
UE Category 1	5	3	7298	19200	QPSK, 16QAM	6	50
UE Category 2	5	3	7298	28800	QPSK, 16QAM	6	50
UE Category 3	5	2	7298	28800	QPSK, 16QAM	6	50
UE Category 4	5	2	7298	38400	QPSK, 16QAM	6	50
UE Category 5	5	1	7298	57600	QPSK, 16QAM	6	50
UE Category 6	5	1	7298	67200	QPSK, 16QAM	6	50
UE Category 7	10	1	14411	115200	QPSK, 16QAM	8	100
UE Category 8	10	1	14411	134400	QPSK, 16QAM	8	100
UE Category 9	15	1	20251	172800	QPSK, 16QAM	8	150
UE Category 10	15	1	27952	172800	QPSK, 16QAM	8	150
UE Category 11	5	2	3630	14400	QPSK	6	50
UE Category 12	5	1	3630	28800	QPSK	6	50

14.1.3.2 Principle for selecting TFRC test points

The transport format and resource combination (TFRC) is identified by the UE by the type of modulation, number of channalisation codes and the transport format and resource identifier (TFRI) signalled on the HS-SCCH.

For the HSDPA radio bearer test cases the principle for selecting typical test points for TFRC is:

1. Select one TFRC per modulation scheme and number of MAC-d PDUs.
2. For each number of MAC-d PDUs select the TFRC minimizing padding.
3. Any TFRC that would cause turbo coder irregularities should be avoided.

The problem with turbo coder regularities appears at certain coding rates. The coding rate for a certain TFCR is:

$Coding\_rate = (TB_{size} + N_{CRC}) / (N_{codes} \cdot N_{phy\_bits})$, where

TB_{size} is the selected transport block,

N_{CRC} is the number of CRC bits,

N_{codes} is the number of channelistion codes, and

N_{phy_bits} is the number physical bits per code (960 for QPSK and 1920 for 16QAM).

Table 14.1.3.2.1 lists the coding rates that cause turbo coder irregularities. In case a candidate TFRC value is causing turbo coder irregularities then the closest higher TFRI value, which do not cause any turbo coder irregularities, is selected.

Table 14.1.3.2.1: Coding rates causing degradation due to turbo coder irregularities

Coding rate	Comment
0.77-0.79	Cause loss up to 3.5 dB
0.835-0.84	Cause loss up to 1.5 dB
0.871-0.878	Cause loss up to 2 dB
0.91-0.914	Cause loss up to 2 dB

NOTE The coding rates in Table 14.2.3.2.1 is based on the simulations as described in RAN WG1 document R1-030444 (Turbo-coding and puncturing interactions on HS-DSCH in R5 HSDPA)

The selection algorithm for the TFRC test points for a certain UE category and MAC-d PDU size is:

1. Set the number of MAC-d PDUs, N_PDU, to 1
2. Calculate the minimum transport block size to fit the number of MAC-d PDUs.
3. If the transport block size is less or equal to the UE capability for ì Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTIî in Table 14.1.3.1.1 then continue with step 4 else there is no more testing points.
4. Select the QPSK test point:
   If it, for the actual UE category and for the selected transport block size, exists a TFRI for QPSK then select the TFRI that maximises the number of codes.
5. Select the 16QAM test point:
   If it, for the actual UE category and for the selected transport block size, exists a TFRI for 16QAM then select the TFRI that maximises the number of codes.
6. Check that the coding rate for the selected TFRC does not cause turbo coder irregularities, see Table 14.1.3.2.1.
   If the coding rate is ok then accept the testing point and continue with step 8 else continue with step 7.
7. If the coding rate is not ok then select the next higher TFRI value that corresponds to an acceptable coding rate.
   Calculate the transport block size correspondent to the modified TFRI values and if it is less or equal to the UE capability for ì Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTIî in Table 14.1.3.1.1 then accept the testing point else skip it.
8. Increment N_PDUs. If N_PDU is less or equal to 70 then repeat from step 2 else there is no more testing points.

14.1.3.3 TFRC test points for MAC-d PDU size=336

Table 14.1.3.3.1: TFRC test points for UE category 1 to UE category 6 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	365	QPSK	1	19	
2	699	QPSK	2	8	
2	699	16QAM	1	8	
3	1036	QPSK	3	7	
3	1036	16QAM	1	30	
4	1380	QPSK	4	7	
4	1380	16QAM	2	7	
5	1711	QPSK	5	6	
5	1711	16QAM	2	19	
6	2046	QPSK	5	16	
6	2046	16QAM	3	6	
7	2404	QPSK	5	25	
7	2404	16QAM	3	15	
8	2726	QPSK	5	32	
8	2726	16QAM	4	6	
9	3090	QPSK	5	39	
9	3090	16QAM	5	0	
10	3440	QPSK	5	45	
10	3440	16QAM	5	6	
11	3830	QPSK	5	51	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78875) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
11	3762	16QAM	5	11	
12	4115	QPSK	5	55	
12	4115	16QAM	5	16	
13	4420	QPSK	5	59	
13	4420	16QAM	5	20	
14	4748	16QAM	5	24	
15	5101	16QAM	5	28	
16	5480	16QAM	5	32	
17	5782	16QAM	5	35	
18	6101	16QAM	5	38	
19	6438	16QAM	5	41	
20	6793	16QAM	5	44	
21	7168	16QAM	5	47	

Table 14.1.3.3.2: TFRC test points for UE category 7 and UE category 8 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	365	QPSK	1	19	
2	699	QPSK	2	8	
2	699	16QAM	1	8	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
3	1036	QPSK	3	7	
3	1036	16QAM	1	30	
4	1380	QPSK	4	7	
4	1380	16QAM	2	7	
5	1711	QPSK	5	6	
5	1711	16QAM	2	19	
6	2046	QPSK	6	6	
6	2046	16QAM	3	6	
7	2404	QPSK	7	6	
7	2404	16QAM	3	15	
8	2726	QPSK	8	6	
8	2726	16QAM	4	6	
9	3090	QPSK	10	0	
9	3090	16QAM	5	0	
10	3440	QPSK	10	6	
10	3440	16QAM	5	6	
11	3762	QPSK	10	11	
11	3762	16QAM	6	1	
12	4115	QPSK	10	16	
12	4115	16QAM	6	6	
13	4420	QPSK	10	20	
13	4420	16QAM	7	1	
14	4748	QPSK	10	24	
14	4748	16QAM	7	5	
15	5101	QPSK	10	28	
15	5101	16QAM	8	2	
16	5480	QPSK	10	32	
16	5480	16QAM	8	6	
17	5782	QPSK	10	35	
17	5782	16QAM	9	2	
18	6101	QPSK	10	38	
18	6101	16QAM	10	0	
19	6438	QPSK	10	41	
19	6438	16QAM	10	3	
20	6793	QPSK	10	44	
20	6793	16QAM	10	6	
21	7168	QPSK	10	47	
21	7168	16QAM	10	9	
22	7564	QPSK	10	50	TFRI = 49 would have minimised padding but is not acceptable as the coding rate (0.7765) would have given 3.5 dB due to turbo coder irregularities. TFRI=50 is selected.
22	7430	16QAM	10	11	
23	7981	QPSK	10	53	TFRI = 49 would have minimised padding but is not acceptable as the coding rate (0.7765) would have given 3.5 dB due to turbo coder irregularities. TFRI=50 is selected.
23	7840	16QAM	10	14	
24	8125	QPSK	10	54	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
24	8125	16QAM	10	16	
25	8422	QPSK	10	56	
25	8422	16QAM	10	18	
26	8886	QPSK	10	59	
26	8886	16QAM	10	21	
27	9210	QPSK	10	61	
27	9210	16QAM	10	23	
28	9546	16QAM	10	25	
29	9894	16QAM	10	27	
30	10255	16QAM	10	29	
31	10440	16QAM	10	30	
32	10821	16QAM	10	32	
33	11216	16QAM	10	34	
34	11625	16QAM	10	36	
35	11835	16QAM	10	37	
36	12266	16QAM	10	39	
37	12488	16QAM	10	40	
38	12943	16QAM	10	42	
39	13177	16QAM	10	43	
40	13657	16QAM	10	45	
41	13904	16QAM	10	46	
42	14155	16QAM	10	47	

Table 14.1.3.3.3: TFRC test points for UE category 9 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	365	QPSK	1	19	
2	699	QPSK	2	8	
2	699	16QAM	1	8	
3	1036	QPSK	3	7	
3	1036	16QAM	1	30	
4	1380	QPSK	4	7	
4	1380	16QAM	2	7	
5	1711	QPSK	5	6	
5	1711	16QAM	2	19	
6	2046	QPSK	6	6	
6	2046	16QAM	3	6	
7	2404	QPSK	7	6	
7	2404	16QAM	3	15	
8	2726	QPSK	8	6	
8	2726	16QAM	4	6	
9	3090	QPSK	10	0	
9	3090	16QAM	5	0	
10	3440	QPSK	11	1	
10	3440	16QAM	5	6	
11	3762	QPSK	12	1	
11	3762	16QAM	6	1	
12	4115	QPSK	13	2	
12	4115	16QAM	6	6	
13	4420	QPSK	14	1	
13	4420	16QAM	7	1	
14	4748	QPSK	15	2	
14	4748	16QAM	7	5	
15	5101	QPSK	15	6	
15	5101	16QAM	8	2	
16	5480	QPSK	15	10	
16	5480	16QAM	8	6	
17	5782	QPSK	15	13	
17	5782	16QAM	9	2	
18	6101	QPSK	15	16	
18	6101	16QAM	10	0	
19	6438	QPSK	15	19	
19	6438	16QAM	10	3	
20	6793	QPSK	15	22	
20	6793	16QAM	11	0	
21	7168	QPSK	15	25	
21	7168	16QAM	11	3	
22	7430	QPSK	15	27	
22	7430	16QAM	12	0	
23	7840	QPSK	15	30	
23	7840	16QAM	12	3	
24	8125	QPSK	15	32	
24	8125	16QAM	13	1	
25	8422	QPSK	15	34	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
25	8422	16QAM	13	3	
26	8886	QPSK	15	37	
26	8886	16QAM	14	2	
27	9210	QPSK	15	39	
27	9210	16QAM	15	0	
28	9546	QPSK	15	41	
28	9546	16QAM	15	2	
29	9894	QPSK	15	43	
29	9894	16QAM	15	4	
30	10255	QPSK	15	45	
30	10255	16QAM	15	6	
31	10440	QPSK	15	46	
31	10440	16QAM	15	7	
32	10821	QPSK	15	48	
32	10821	16QAM	15	9	
33	11418	QPSK	15	51	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78056) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
33	11216	16QAM	15	11	
34	11625	QPSK	15	52	
34	11625	16QAM	15	13	
35	11835	QPSK	15	53	
35	11835	16QAM	15	14	
36	12266	QPSK	15	55	
36	12266	16QAM	15	16	
37	12488	QPSK	15	56	
37	12488	16QAM	15	17	
38	12943	QPSK	15	58	
38	12943	16QAM	15	19	
39	13177	QPSK	15	59	
39	13177	16QAM	15	20	
40	13657	QPSK	15	61	
40	13657	16QAM	15	22	
41	13904	QPSK	15	62	
41	13904	16QAM	15	23	
42	14155	16QAM	15	24	
43	14671	16QAM	15	26	
44	14936	16QAM	15	27	
45	15206	16QAM	15	28	
46	15481	16QAM	15	29	
47	16045	16QAM	15	31	
48	16335	16QAM	15	32	
49	16630	16QAM	15	33	
50	16931	16QAM	15	34	
51	17237	16QAM	15	35	
52	17548	16QAM	15	36	
53	17865	16QAM	15	37	
54	18188	16QAM	15	38	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
55	18517	16QAM	15	39	
56	18851	16QAM	15	40	
57	19192	16QAM	15	41	
58	19538	16QAM	15	42	
59	19891	16QAM	15	43	
60	20251	16QAM	15	44	

Table 14.1.3.3.4: TFRC test points for UE category 10 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	365	QPSK	1	19	
2	699	QPSK	2	8	
2	699	16QAM	1	8	
3	1036	QPSK	3	7	
3	1036	16QAM	1	30	
4	1380	QPSK	4	7	
4	1380	16QAM	2	7	
5	1711	QPSK	5	6	
5	1711	16QAM	2	19	
6	2046	QPSK	6	6	
6	2046	16QAM	3	6	
7	2404	QPSK	7	6	
7	2404	16QAM	3	15	
8	2726	QPSK	8	6	
8	2726	16QAM	4	6	
9	3090	QPSK	10	0	
9	3090	16QAM	5	0	
10	3440	QPSK	11	1	
10	3440	16QAM	5	6	
11	3762	QPSK	12	1	
11	3762	16QAM	6	1	
12	4115	QPSK	13	2	
12	4115	16QAM	6	6	
13	4420	QPSK	14	1	
13	4420	16QAM	7	1	
14	4748	QPSK	15	2	
14	4748	16QAM	7	5	
15	5101	QPSK	15	6	
15	5101	16QAM	8	2	
16	5480	QPSK	15	10	
16	5480	16QAM	8	6	
17	5782	QPSK	15	13	
17	5782	16QAM	9	2	
18	6101	QPSK	15	16	
18	6101	16QAM	10	0	
19	6438	QPSK	15	19	
19	6438	16QAM	10	3	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
20	6793	QPSK	15	22	
20	6793	16QAM	11	0	
21	7168	QPSK	15	25	
21	7168	16QAM	11	3	
22	7430	QPSK	15	27	
22	7430	16QAM	12	0	
23	7840	QPSK	15	30	
23	7840	16QAM	12	3	
24	8125	QPSK	15	32	
24	8125	16QAM	13	1	
25	8422	QPSK	15	34	
25	8422	16QAM	13	3	
26	8886	QPSK	15	37	
26	8886	16QAM	14	2	
27	9210	QPSK	15	39	
27	9210	16QAM	15	0	
28	9546	QPSK	15	41	
28	9546	16QAM	15	2	
29	9894	QPSK	15	43	
29	9894	16QAM	15	4	
30	10255	QPSK	15	45	
30	10255	16QAM	15	6	
31	10440	QPSK	15	46	
31	10440	16QAM	15	7	
32	10821	QPSK	15	48	
32	10821	16QAM	15	9	
33	11418	QPSK	15	51	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78056) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
33	11216	16QAM	15	11	
34	11625	QPSK	15	52	
34	11625	16QAM	15	13	
35	11835	QPSK	15	53	
35	11835	16QAM	15	14	
36	12266	QPSK	15	55	
36	12266	16QAM	15	16	
37	12488	QPSK	15	56	
37	12488	16QAM	15	17	
38	12943	QPSK	15	58	
38	12943	16QAM	15	19	
39	13177	QPSK	15	59	
39	13177	16QAM	15	20	
40	13657	QPSK	15	61	
40	13657	16QAM	15	22	
41	13904	QPSK	15	62	
41	13904	16QAM	15	23	
42	14155	16QAM	15	24	
43	14671	16QAM	15	26	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
44	14936	16QAM	15	27	
45	15206	16QAM	15	28	
46	15481	16QAM	15	29	
47	16045	16QAM	15	31	
48	16335	16QAM	15	32	
49	16630	16QAM	15	33	
50	16931	16QAM	15	34	
51	17237	16QAM	15	35	
52	17548	16QAM	15	36	
53	17865	16QAM	15	37	
54	18188	16QAM	15	38	
55	18517	16QAM	15	39	
56	18851	16QAM	15	40	
57	19192	16QAM	15	41	
58	19538	16QAM	15	42	
59	19891	16QAM	15	43	
60	20251	16QAM	15	44	
61	20617	16QAM	15	45	
62	20989	16QAM	15	46	
63	21368	16QAM	15	47	
64	21754	16QAM	15	48	
65	22147	16QAM	15	49	
66	22955	16QAM	15	51	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78375) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
67	22955	16QAM	15	51	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78375) would have given 3.5 dB due to turbo coder irregularities. TFRI=51 is selected.
68	22955	16QAM	15	51	
69	23370	16QAM	15	52	
70	23792	16QAM	15	53	

Table 14.1.3.3.5: TFRC test points for UE category 11 and UE category 12 for MAC-d PDU size=336

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	365	QPSK	1	19	
2	699	QPSK	2	8	
3	1036	QPSK	3	7	
4	1380	QPSK	4	7	
5	1711	QPSK	5	6	
6	2046	QPSK	5	16	
7	2404	QPSK	5	25	
8	2726	QPSK	5	32	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
9	3090	QPSK	5	39	
10	3440	QPSK	5	45	

14.1.3.4 TFRC test points for MAC-d PDU size=656

Table 14.1.3.4.1: TFRC test points for UE category 1 to UE category 6 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	686	QPSK	2	7	
1	686	16QAM	1	7	
2	1356	QPSK	4	6	
2	1356	16QAM	2	6	
3	2010	QPSK	5	15	
3	2010	16QAM	3	5	
4	2677	QPSK	5	31	
4	2677	16QAM	4	5	
5	3319	QPSK	5	43	
5	3319	16QAM	5	4	
6	3970	QPSK	5	53	
6	3970	16QAM	5	14	
7	4664	QPSK	5	62	
7	4664	16QAM	5	23	
8	5287	16QAM	5	30	
9	5993	16QAM	5	37	
10	6673	16QAM	5	43	
11	7298	16QAM	5	48	

Table 14.1.3.4.2: TFRC test points for UE category 7 and UE category 8 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	686	QPSK	2	7	
1	686	16QAM	1	7	
2	1356	QPSK	4	6	
2	1356	16QAM	2	6	
3	2010	QPSK	6	5	
3	2010	16QAM	3	5	
4	2677	QPSK	8	5	
4	2677	16QAM	4	5	
5	3319	QPSK	10	4	
5	3319	16QAM	5	4	
6	3970	QPSK	5	53	
6	3970	QPSK	10	14	
6	3970	16QAM	6	4	
7	4664	QPSK	5	62	
7	4664	QPSK	10	23	
7	4664	16QAM	7	4	
8	5287	QPSK	10	30	
8	5287	16QAM	8	4	
9	5993	QPSK	10	37	
9	5993	16QAM	9	4	
10	6673	QPSK	10	43	
10	6673	16QAM	10	5	
11	7298	QPSK	10	48	
11	7298	16QAM	10	10	
12	7981	QPSK	10	53	
12	7981	16QAM	10	15	
13	8574	QPSK	10	57	
13	8574	16QAM	10	19	
14	9210	QPSK	10	61	
14	9210	16QAM	10	23	
15	9894	16QAM	10	27	
16	10629	16QAM	10	31	
17	11216	16QAM	10	34	
18	11835	16QAM	10	37	
19	12488	16QAM	10	40	
20	13177	16QAM	10	43	
21	13904	16QAM	10	46	

Table 14.1.3.4.3: TFRC test points for UE category 9 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	686	QPSK	2	7	
1	686	16QAM	1	7	
2	1356	QPSK	4	6	
2	1356	16QAM	2	6	
3	2010	QPSK	6	5	
3	2010	16QAM	3	5	
4	2677	QPSK	8	5	
4	2677	16QAM	4	5	
5	3319	QPSK	10	4	
5	3319	16QAM	5	4	
6	3970	QPSK	5	53	
6	3970	QPSK	13	0	
6	3970	16QAM	6	4	
7	4664	QPSK	5	62	
7	4664	QPSK	15	1	
7	4664	16QAM	7	4	
8	5287	QPSK	15	8	
8	5287	16QAM	8	4	
9	5993	QPSK	15	15	
9	5993	QPSK	15	15	
9	5993	16QAM	9	4	
9	5993	QPSK	15	15	
10	6673	QPSK	15	21	
10	6673	16QAM	10	5	
9	5993	QPSK	15	15	
11	7298	QPSK	15	26	
11	7298	16QAM	11	4	
9	5993	QPSK	15	15	
12	7981	QPSK	15	31	
12	7981	16QAM	13	0	
9	5993	QPSK	15	15	
13	8574	QPSK	15	35	
13	8574	16QAM	14	0	
9	5993	QPSK	15	15	
14	9210	QPSK	15	39	
14	9210	16QAM	15	0	
15	9894	QPSK	15	43	
15	9894	16QAM	15	4	
16	10629	QPSK	15	47	
16	10629	16QAM	15	8	
17	11418	QPSK	15	51	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.7806) would have given 3.5 dB due to turbo coder irregularities TFRI=51 is selected.
17	11216	16QAM	15	11	
18	11835	QPSK	15	53	
18	11835	16QAM	15	14	
19	12488	QPSK	15	56	

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
19	12488	16QAM	15	17	
20	13177	QPSK	15	59	
20	13177	16QAM	15	20	
21	13904	QPSK	15	62	
21	13904	16QAM	15	23	
22	14671	16QAM	15	26	
23	15206	16QAM	15	28	
24	16045	16QAM	15	31	
25	16630	16QAM	15	33	
26	17237	16QAM	15	35	
27	17865	16QAM	15	37	
28	18517	16QAM	15	39	
29	19192	16QAM	15	41	
30	19891	16QAM	15	43	

Table 14.1.3.4.4: TFRC test points for UE category 10 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	686	QPSK	2	7	
1	686	16QAM	1	7	
2	1356	QPSK	4	6	
2	1356	16QAM	2	6	
3	2010	QPSK	6	5	
3	2010	16QAM	3	5	
4	2677	QPSK	8	5	
4	2677	16QAM	4	5	
5	3319	QPSK	10	4	
5	3319	16QAM	5	4	
6	3970	QPSK	5	53	
6	3970	QPSK	13	0	
6	3970	16QAM	6	4	
7	4664	QPSK	5	62	
7	4664	QPSK	15	1	
7	4664	16QAM	7	4	
8	5287	QPSK	15	8	
8	5287	16QAM	8	4	
9	5993	QPSK	15	15	
9	5993	QPSK	15	15	
9	5993	16QAM	9	4	
9	5993	QPSK	15	15	
10	6673	QPSK	15	21	
10	6673	16QAM	10	5	
9	5993	QPSK	15	15	
11	7298	QPSK	15	26	
11	7298	16QAM	11	4	
9	5993	QPSK	15	15	
12	7981	QPSK	15	31	

12	7981	16QAM	13	0	
9	5993	QPSK	15	15	
13	8574	QPSK	15	35	
13	8574	16QAM	14	0	
9	5993	QPSK	15	15	
14	9210	QPSK	15	39	
14	9210	16QAM	15	0	
15	9894	QPSK	15	43	
15	9894	16QAM	15	4	
16	10629	QPSK	15	47	
16	10629	16QAM	15	8	
17	11418	QPSK	15	51	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.7806) would have given 3.5 dB due to turbo coder irregularities TFRI=51 is selected.
17	11216	16QAM	15	11	
18	11835	QPSK	15	53	
18	11835	16QAM	15	14	
19	12488	QPSK	15	56	
19	12488	16QAM	15	17	
20	13177	QPSK	15	59	
20	13177	16QAM	15	20	
21	13904	QPSK	15	62	
21	13904	16QAM	15	23	
22	14671	16QAM	15	26	
23	15206	16QAM	15	28	
24	16045	16QAM	15	31	
25	16630	16QAM	15	33	
26	17237	16QAM	15	35	
27	17865	16QAM	15	37	
28	18517	16QAM	15	39	
29	19192	16QAM	15	41	
30	19891	16QAM	15	43	
31	20617	16QAM	15	45	
32	21368	16QAM	15	47	
33	21754	16QAM	15	48	
34	22955	16QAM	15	51	TFRI = 50 would have minimised padding but is not acceptable as the coding rate (0.78375) would have given 3.5 dB due to turbo coder irregularities TFRI=51 is selected.
35	23370	16QAM	15	52	
36	23792	16QAM	15	53	
37	24659	16QAM	15	55	
38	25558	16QAM	15	57	TFRI = 56 would have minimised padding but is not acceptable as the coding rate (0.8725) would have given 2 dB due to turbo coder irregularities TFRI=57 is selected.
39	26020	16QAM	15	58	
40	26490	16QAM	15	59	
41	26969	16QAM	15	60	
42	27952	16QAM	15	62	

Table 14.1.3.4.5: TFRC test points for UE category 11 and UE category 12 for MAC-d PDU size=656

Number of MAC-d PDUs	Selected transport block size [bits]	Modulation scheme	Number of codes	TFRI	Comments
1	686	QPSK	2	7	
2	1356	QPSK	4	6	
3	2010	QPSK	5	15	
4	2677	QPSK	5	31	
5	3319	QPSK	5	43	

14.1.3.52 Generic test procedure for single HS-DSCH radio bearer configurations

This procedure is used to test single HS-DSCH radio bearer configurations. The procedure is run once for each sub-test of the actual HS-DSCH radio bearer test case.

Definition of test variables:

N_{codes}	Number of HS-DSCH codes (1..15, maximum number dependent on UE category)
M	Type of modulation scheme (QPSK, 16QAM)
~~k_i~~	~~TFRI signalled on the HS-SCCH value~~
~~$K_{0,I}$~~	~~See table 14.1.3.2.1~~
~~k_t~~	~~Transport Block Size index ($=k_i + k_{0,I}$), see table 14.6.1.2.2~~
TB_{size}	Transport Block size
N_{PDUs}	Number of MAC-d PDUs
~~*MAC-hs_header_size*~~	~~MAC-hs header size for the reference HS-DSCH radio bearer configuration under test.~~
~~*MAC-d_PDU_size*~~	~~MAC-d PDU size for the reference HS-DSCH radio bearer configuration under test.~~
H_{ID}	HARQ process identifier (0..7)

~~**Table 14.1.3.2.1: Values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes**~~

~~Combination *I*~~	~~Modulation scheme~~	~~Number of channelization codes~~	$k_{0,i}$
~~0~~	~~QPSK~~	~~1~~	~~1~~
~~1~~		~~2~~	~~40~~
~~2~~		~~3~~	~~63~~
~~3~~		~~4~~	~~79~~
~~4~~		~~5~~	~~92~~
~~5~~		~~6~~	~~102~~
~~6~~		~~7~~	~~111~~
~~7~~		~~8~~	~~118~~
~~8~~		~~9~~	~~125~~
~~9~~		~~10~~	~~131~~
~~10~~		~~11~~	~~136~~
~~11~~		~~12~~	~~141~~
~~12~~		~~13~~	~~145~~

13		14	150
14		15	153
15	16QAM	1	40
16		2	79
17		3	102
18		4	118
19		5	131
20		6	141
21		7	150
22		8	157
23		9	164
24		10	169
25		11	175
26		12	180
27		13	184
28		14	188
29		15	192

Table 14.1.3.2.2: Mapping of HS-DSCH Transport Block Size for FDD to value of index k_t ($=k_i + k_{0,i}$)

Index	TB Size	Index	TB Size	Index	TB Size
1	137	86	1380	171	6324
2	149	87	1405	172	6438
3	161	88	1430	173	6554
4	173	89	1456	174	6673
5	185	90	1483	175	6793
6	197	91	1509	176	6916
7	209	92	1537	177	7041
8	221	93	1564	178	7168
9	233	94	1593	179	7298
10	245	95	1621	180	7430
11	257	96	1651	181	7564
12	269	97	1681	182	7700
13	281	98	1711	183	7840
14	293	99	1742	184	7981
15	305	100	1773	185	8125
16	317	101	1805	186	8272
17	329	102	1838	187	8422
18	341	103	1871	188	8574
19	353	104	1905	189	8729
20	365	105	1939	190	8886
21	377	106	1974	191	9047
22	389	107	2010	192	9210
23	401	108	2046	193	9377
24	413	109	2083	194	9546
25	425	110	2121	195	9719
26	437	111	2159	196	9894
27	449	112	2198	197	10073
28	461	113	2238	198	10255
29	473	114	2279	199	10440
30	485	115	2320	200	10629
31	497	116	2362	201	10821

32	509	117	2404	202	11017
33	521	118	2448	203	11216
34	533	119	2492	204	11418
35	545	120	2537	205	11625
36	557	121	2583	206	11835
37	569	122	2630	207	12048
38	581	123	2677	208	12266
39	593	124	2726	209	12488
40	605	125	2775	210	12713
41	616	126	2825	211	12943
42	627	127	2876	212	13177
43	639	128	2928	213	13415
44	650	129	2981	214	13657
45	662	130	3035	215	13904
46	674	131	3090	216	14155
47	686	132	3145	217	14411
48	699	133	3202	218	14671
49	711	134	3260	219	14936
50	724	135	3319	220	15206
51	737	136	3379	221	15481
52	751	137	3440	222	15761
53	764	138	3502	223	16045
54	778	139	3565	224	16335
55	792	140	3630	225	16630
56	806	141	3695	226	16931
57	821	142	3762	227	17237
58	836	143	3830	228	17548
59	851	144	3899	229	17865
60	866	145	3970	230	18188
61	882	146	4042	231	18517
62	898	147	4115	232	18851
63	914	148	4189	233	19192
64	931	149	4265	234	19538
65	947	150	4342	235	19891
66	964	151	4420	236	20251
67	982	152	4500	237	20617
68	1000	153	4581	238	20989
69	1018	154	4664	239	21368
70	1036	155	4748	240	21754
71	1055	156	4834	241	22147
72	1074	157	4921	242	22548
73	1093	158	5010	243	22955
74	1113	159	5101	244	23370
75	1133	160	5193	245	23792
76	1154	161	5287	246	24222
77	1175	162	5382	247	24659
78	1196	163	5480	248	25105
79	1217	164	5579	249	25558
80	1239	165	5680	250	26020
81	1262	166	5782	251	26490
82	1285	167	5887	252	26969
83	1308	168	5993	253	27456
84	1331	169	6101	254	27952

~~85~~	~~1356~~	~~170~~	~~6211~~		

14.1.3.52.1 Initial conditions

UE in idle mode

14.1.3.52.2 Test procedure

a) The SS establishes the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. See note 1.

b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 2.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test.

d) The SS selects the first TFRC test point (N_{PDUs}, M, N_{codes} and TFRI) according to the applicable table in sub-clauses 14.1.3.3 (MAC-d PDU size=336) or 14.1.3.4 (MAC-d PDU size=656).~~ts M= QPSK.~~

e) The SS sets H_{ID} = 0~~N_{codes} = 1~~.

f) The SS creates a DL RLC SDU of size N_{PDUs} * MAC-d PDU payload size minus 8 bits (size of 7 bit length indicator and expansion bit).

g) The SS transmits a MAC-hs PDU containing the DL RLC SDU using the selected TFRC and H_{ID}.

h) The SS checks that the content of the UE returned RLC SDU has the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

i) The SS sets H_{ID} = (H_{ID} + 1) modulo Max_H_{ID}, where Max_H_{ID} equals the number of HARQ processes to be verified by the actual sub-test

j) The SS repeats steps f) to i) for the remaining TFRC test point (N_{PDUs}, M, N_{codes} and TFRI) according to the applicable table in sub-clauses 14.1.3.3 (MAC-d PDU size=336) or 14.1.3.4 (MAC-d PDU size=656) for the UE category and MAC-d PDU size under test.

k) The SS opens the UE test loop.

l) The SS release the radio bearer.

m) Steps a) to l) are repeated for all sub-tests.

n) The SS may optionally deactivate the radio bearer test mode.

~~f) The SS sets $k_{0,t}$ to the value according to table 14.1.3.2.1 based on the actual value of M and N_{codes}.~~

~~g) The SS sets the test parameter k_i to 0.~~

~~h) The SS calculates the index value k_t (=k_i + $k_{0,t}$) and lockup the transport block size, TB_{size}, for the actual k_t in table 14.1.3.2.2~~

~~If TB_{size} is bigger than ì Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTIî for the actual UE category then SS continues with step e).~~

~~i) The SS calculates the maximum number of MAC-d PDUs that fits into the MAC-hs transport block:~~

~~N_{PDUs} = floor((TB_{size} ñ MAC-hs_header_size) / MAC-d_PDU_size)~~

~~If N_{PDUs} is bigger than 70 then SS continues with step e).~~

j) The SS sends a MAC-hs PDU containing N_{PDUs} MAC-d PDUs, where each MAC-d PDU contains a RLC SDU of size DL RLC payload size minus 8 bits (size of 7-bit length indicator and expansion bit). See note 3.

k) For each HARQ processes under test the SS checks that the UE HARQ buffer is sufficient to store the transmission, and if so a MAC-hs PDU of size TB_{size} is transmitted with TFRI= $k_{0,i}$. Data is transmitted every Nth TTI where N is given by the minimum inter-TTI interval.

l) The SS checks that the content of the UE returned RLC SDU has the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

m) The SS increments the test parameter k_i by 1. If k_i is less than 63 then SS repeats steps h) to m).

n) The SS increments the test parameter *N_Code by 1*. If *N_code* is less or equal to the ìMaximum number of HS-DSCH codes receivedî for the actual UE category under test then the SS repeats test steps f) to n).

o) If *Modulation* = QPSK and UE Category is 1 to 10 then the SS sets the test parameter *Modulation* to 16QAM and repeats steps e) to o).

p) The SS opens the UE test loop.

q) The SS release the radio bearer.

r) Steps a) to q) are repeated for all sub-tests.

s) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test. The number of soft channel bits per HARQ process is split equally among the number of HARQ processes configured for the actual sub-test - i.e. ìTotal number of soft channel bitsî for the UE category according to table 14.1.3.1.1 divided by the number of HARQ processes under test. The number of reordering queues are 1 for single HS-DSCH radio bearer configurations. The MAC-hs window size, RLC Transmission window size and RLC Receiving window size shall be configured as specified for the actual sub-test.

NOTE 2: The restricted set of uplink TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signaling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 3: The MAC-hs window size and RLC Receiver and transmitter window sizes need to be chosen such that the UE capability for ìMinimum total RLC AM and MAC-hs buffer sizeî is not exceeded for the UE category under test.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the ëpdcp infoí IE must be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test
14	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
15	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
16	SS			The SS calculates test data for the first TFRC~~, N_{codes} and M~~. The SS sets H_{ID} = 0
17	<--		DOWNLINK MAC-hs PDU ~~(HARQ process 1)~~ ~~Ö ..~~ ~~DOWNLINK MAC-hs PDU (HARQ process N)~~	Send test data for ~~the number of~~ HARQ processe~~s~~ H_{ID} ~~to be tested~~
18	-->		UPLINK RLC SDU ~~Ö ..~~ ~~UPLINK RLC SDU~~	The SS checks that the content and transport format of the received UL RLC SDU is correct~~number of returned RLC SDUs depends on the TFRC and the number of HARQ processed to be tested~~.
19	SS			The SS sets H_{ID} = (H_{ID} + 1) modulo $Max\ H_{ID}$. The SS calculates test data for the next TFRC and repeat steps 17~~8~~ to 18~~9~~ until all TFRCs have been tested.
20	<--		OPEN UE TEST LOOP (DCCH)	TC
21	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
22			RB RELEASE	RRC
23	<--		DEACTIVATE RB TEST MODE	TC Optional step
24	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

Note 1 In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

<End of modified section>

<Start of next modified section>

14.6 Combinations on DPCH and HS-PDSCH

14.6.1 Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.1.1 Conformance requirement

For all transmissions of a transport block, the transport block size is derived from the TFRI value as specified below, except only in those cases of retransmissions where the Node-B selects a combination for which no mapping exists between the original transport block size and the selected combination of channelisation Code set and modulation type. In such cases, the transport block size index value signalled to the UE shall be set to 111111, i.e., k_i=63.

Let k_i be the TFRI signalled on the HS-SCCH value and let $k_{0,i}$ be the value in the table 9.2.3.1 corresponding to the modulation and the number of codes signalled on the HS-SCCH. Let k_t be the sum of the two values: $k_t = k_i + k_{0,i}$. The transport block size $L(k_t)$ can be obtained by accessing the position k_t in the table in Annex A (normative) or by using the formula below (informative):

If $k_t < 40$

$$L(k_t) = 125 + 12 \cdot k_t$$

else

$$L(k_t) = \lfloor L_{\min} p^{k_t} \rfloor$$

$$p = 2085/2048$$

$$L_{\min} = 296$$

end

Table 9.2.3.1: Values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes

Combination i	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	40
2		3	63
3		4	79
4		5	92
5		6	102
6		7	111
7		8	118
8		9	125
9		10	131
10		11	136
11		12	141
12		13	145
13		14	150
14		15	153
15	16QAM	1	40
16		2	79
17		3	102

18		4	118
19		5	131
20		6	141
21		7	150
22		8	157
23		9	164
24		10	169
25		11	175
26		12	180
27		13	184
28		14	188
29		15	192

Ö Ö

The following table provides the mapping between k_t (as per the definition in subclause 9.2.3.1) and the HS-DSCH Transport Block Size ($L(k_t)$):

Index	TB Size	Index	TB Size	Index	TB Size
1	137	86	1380	171	6324
2	149	87	1405	172	6438
3	161	88	1430	173	6554
4	173	89	1456	174	6673
5	185	90	1483	175	6793
6	197	91	1509	176	6916
7	209	92	1537	177	7041
8	221	93	1564	178	7168
9	233	94	1593	179	7298
10	245	95	1621	180	7430
11	257	96	1651	181	7564
12	269	97	1681	182	7700
13	281	98	1711	183	7840
14	293	99	1742	184	7981
15	305	100	1773	185	8125
16	317	101	1805	186	8272
17	329	102	1838	187	8422
18	341	103	1871	188	8574
19	353	104	1905	189	8729
20	365	105	1939	190	8886
21	377	106	1974	191	9047
22	389	107	2010	192	9210
23	401	108	2046	193	9377
24	413	109	2083	194	9546
25	425	110	2121	195	9719
26	437	111	2159	196	9894
27	449	112	2198	197	10073
28	461	113	2238	198	10255
29	473	114	2279	199	10440
30	485	115	2320	200	10629
31	497	116	2362	201	10821
32	509	117	2404	202	11017
33	521	118	2448	203	11216
34	533	119	2492	204	11418
35	545	120	2537	205	11625
36	557	121	2583	206	11835

37	569	122	2630	207	12048
38	581	123	2677	208	12266
39	593	124	2726	209	12488
40	605	125	2775	210	12713
41	616	126	2825	211	12943
42	627	127	2876	212	13177
43	639	128	2928	213	13415
44	650	129	2981	214	13657
45	662	130	3035	215	13904
46	674	131	3090	216	14155
47	686	132	3145	217	14411
48	699	133	3202	218	14671
49	711	134	3260	219	14936
50	724	135	3319	220	15206
51	737	136	3379	221	15481
52	751	137	3440	222	15761
53	764	138	3502	223	16045
54	778	139	3565	224	16335
55	792	140	3630	225	16630
56	806	141	3695	226	16931
57	821	142	3762	227	17237
58	836	143	3830	228	17548
59	851	144	3899	229	17865
60	866	145	3970	230	18188
61	882	146	4042	231	18517
62	898	147	4115	232	18851
63	914	148	4189	233	19192
64	931	149	4265	234	19538
65	947	150	4342	235	19891
66	964	151	4420	236	20251
67	982	152	4500	237	20617
68	1000	153	4581	238	20989
69	1018	154	4664	239	21368
70	1036	155	4748	240	21754
71	1055	156	4834	241	22147
72	1074	157	4921	242	22548
73	1093	158	5010	243	22955
74	1113	159	5101	244	23370
75	1133	160	5193	245	23792
76	1154	161	5287	246	24222
77	1175	162	5382	247	24659
78	1196	163	5480	248	25105
79	1217	164	5579	249	25558
80	1239	165	5680	250	26020
81	1262	166	5782	251	26490
82	1285	167	5887	252	26969
83	1308	168	5993	253	27456
84	1331	169	6101	254	27952
85	1356	170	6211		

Reference(s)

3GPP TS 25.321, 9.2.3.1 and Annex A

14.6.1.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.1.

14.6.1.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	3x336	N/A
	TF4, bits	4x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF0, TF1)
UL_TFC6	(TF1, TF1)
UL_TFC7	(TF2, TF1)
UL_TFC8	(TF3, TF1)
UL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	2	512	128	336	UL_TFC1	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312
	2	2	512	128					
	3	3	512	128					
	4	3	512	128					
	5	6	512	256					
	6	6	512	256					
	7	6	1536	512					
	8	6	1536	512					
	9	6	2047	512					
	10	6	2047	512					
	11	3	1024	128					
	12	6	1024	128					
2	1	2	256	128	656	UL_TFC2	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632
	2	2	256	128					
	3	3	256	128					
	4	3	256	128					
	5	6	256	256					
	6	6	256	256					
	7	6	512	512					
	8	6	512	512					
	9	6	1024	512					
	10	6	1024	1024					
	11	3	512	128					
	12	6	512	128					
3	1	8	512	256	336	UL_TFC3	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952~~312~~
	2	8	512	256					
	3	8	512	256					
	4	8	512	256					
	5	8	512	256					
	6	8	512	256					
	7	8	1536	512					
	8	8	1536	512					
	9	8	2047	512					
	10	8	2047	1024					
	11	8	1024	128					
	12	8	1024	128					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272~~632~~
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
	10	8	1024	1024					
	11	8	512	128					
	12	8	512	128					

NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test.
NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC5 are part of minimum set of TFCIs.
NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.
RB5: ~~To be able to verify all data sent in downlink t~~The UL RLC SDU size is set to N*UL~~DL~~ RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit), where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.

14.6.1.4 Test requirements

See 14.1.3.5~~2~~ for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2~~1~~ (2x336).
   - for sub-test 3: TF3~~1~~ (3x336).
   - for sub-test 4: TF4~~1~~ (4x336).
3. At step 18 the UE shall return
   - for sub-test 1: a RLC SDU having the same content as the first 312 bits of the test data sent by the SS in downlink.~~s with correct content. See note.~~
   - for sub-test 2: a RLC SDU having the same content as the first 632 bits of the test data sent by the SS in downlink.
   - for sub-test 3: a RLC SDU having the same content as the first 952 bits of the test data sent by the SS in downlink.
   - for sub-test 4: a RLC SDU having the same content as the first 1272 bits of the test data sent by the SS in downlink.

~~NOTE The number of returned RLC SDUs depends on the TFRC.~~

14.6.2 Interactive or background / UL:384 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.6.2.1 Conformance requirement

See 14.6.1.1.

14.6.2.2 Test purpose

To verify radio bearer establishment and correct data transfer for reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.5.2.

14.6.2.3 Method of test

The following parameters are specific for this test case:

Parameter	Value
MAC-hs receiver window size	16
RLC Transmission window size	See sub-test table
RLC Receiving window size	See sub-test table

The generic test procedure in 14.1.3 is run for each sub-test.

Uplink TFS:

	TFI	RB5 (384 kbps, 10ms)	DCCH
TFS	TF0, bits	0x336	0x148
	TF1, bits	1x336	1x148
	TF2, bits	2x336	N/A
	TF3, bits	4x336	N/A
	TF4, bits	8x336	N/A
	TF5, bits	12x336	N/A

Uplink TFCS:

TFCI	(RB5, DCCH)
UL_TFC0	(TF0, TF0)
UL_TFC1	(TF1, TF0)
UL_TFC2	(TF2, TF0)
UL_TFC3	(TF3, TF0)
UL_TFC4	(TF4, TF0)
UL_TFC5	(TF5, TF0)
UL_TFC6	(TF0, TF1)
UL_TFC7	(TF1, TF1)
UL_TFC8	(TF2, TF1)
UL_TFC9	(TF3, TF1)
UL_TFC10	(TF4, TF1)
UL_TFC11	(TF5, TF1)

Sub-tests:

Sub-test	UE Category	Number of HARQ processes	RLC Receiving window size (note 1)	RLC Trans-mission window size (note 1)	MAC-d PDU size (bits)	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs (note 2)	UL RLC SDU size (bits) (note 3)
1	1	2	512	256	336	UL_TFC1	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC6, UL_TFC7	RB5: 312
	2	2	512	256					
	3	3	512	256					
	4	3	512	256					
	5	6	512	256					
	6	6	512	256					
	7	6	1536	512					
	8	6	1536	512					
	9	6	2047	512					
	10	6	2047	512					
	11	3	512	256					
	12	6	512	256					
2	1	2	256	256	656	UL_TFC2	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC6, UL_TFC8	RB5: 632
	2	2	256	256					
	3	3	256	256					
	4	3	256	256					
	5	6	256	256					
	6	6	256	256					
	7	6	512	512					
	8	6	512	512					
	9	6	1024	512					
	10	6	1024	1024					
	11	3	256	256					
	12	6	256	256					
3	1	8	512	256	336	UL_TFC3	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC3, UL_TFC6, UL_TFC9	RB5: 1272~~312~~
	2	8	512	256					
	3	8	512	256					
	4	8	512	256					
	5	8	512	256					
	6	8	512	256					
	7	8	1536	512					
	8	8	1536	512					
	9	8	2047	512					
	10	8	2047	1024					
	11	8	512	256					
	12	8	512	256					
4	1	8	256	256	656	UL_TFC4	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC4, UL_TFC6, UL_TFC10	RB5: 2552~~632~~
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					
	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
	10	8	1024	1024					
	11	8	256	256					
	12	8	256	256					
5	1	8	256	256	656	UL_TFC5	UL_TFC0, UL_TFC6	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6, UL_TFC11	RB5: 3832~~632~~
	2	8	256	256					
	3	8	256	256					
	4	8	256	256					
	5	8	256	256					
	6	8	256	256					

	7	8	512	512					
	8	8	512	512					
	9	8	1024	512					
	10	8	1024	1024					
	11	8	256	256					
	12	8	256	256					
NOTE 1: The SS shall configure the RLC transmission and receiver window size depending on the UE category. The values are set to cope with the number of SDUs used in the sub-test and within the UE capabilities for the actual UE category under test. NOTE 2: UL_TFC0, UL_TFC1 and UL_TFC6 are part of minimum set of TFCIs. NOTE 3: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB5: ~~To be able to verify all data sent in downlink t~~The UL RLC SDU size is set to ~~DL~~N*UL RLC payload size minus 8 bits (size of 7 bit length indicator and expansion bit) , where N is the number of transport blocks for the UL transport format under test. This will enable the UE to return th data within one UL TTI.									

14.6.2.4 Test requirements

See 14.1.5~~3~~.2 for definition of step 12 and step 18.

1. At step 12 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 18 the UE transmitted transport format shall be
   - for sub-test 1: TF1 (1x336).
   - for sub-test 2: TF2~~1~~ (2x336).
   - for sub-test 3: TF3~~1~~ (4x336).
   - for sub-test 4: TF4~~1~~ (8x336).
   - for sub-test ~~4~~5: TF5~~1~~ (12x336).
3. At step 18 the UE shall return ~~RLC SDUs with correct content. See note.~~
   - for sub-test 1: a RLC SDU having the same content as the first 312 bits of the test data sent by the SS in downlink.
   - for sub-test 2: a RLC SDU having the same content as the first 632 bits of the test data sent by the SS in downlink.
   - for sub-test 3: a RLC SDU having the same content as the first 1272 bits of the test data sent by the SS in downlink.
   - for sub-test 4: a RLC SDU having the same content as the first 2552 bits of the test data sent by the SS in downlink.
   - for sub-test 5: a RLC SDU having the same content as the first 3832 bits of the test data sent by the SS in downlink.

~~NOTE The number of returned RLC SDUs depends on the TFRC.~~

<End of modified section>

3GPP TSG T1 Meeting #24
Malta, 1st ñ 5th November 2004

T1-041956 ⌘

CR-Form-v7

CHANGE REQUEST

⌘ ~~TS~~ **34.123-1** **CR** 1026 ⌘ **rev** - ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to 14.1.2 (Revision of T1-041798)
Source:	⌘	Panasonic
Work item code:	⌘	TEI
Date:	⌘	03/11/04
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	In Note 2 of 14.1.2, the calculation of the UL RLC SDU size is incorrectly given.
Summary of change:	⌘	The UL RLC SDU size should be calculated by dividing UL TF payload size under test by the ratio between downlink and uplink TTI and then minus the size of length indicator and expansion bit.
Consequences if not approved:	⌘	Good UE may fail the test

Clauses affected:	⌘	14.1.2			
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

14.1.2 Generic test procedure for testing multi-RB combinations and simultaneous signalling

This procedure is used to test multiple radio bearer combinations. This procedure is also used to verify simultaneous transmission and reception of user data and signalling data.

Initial conditions

UE in idle mode

Test procedure

a) The SS establish the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. For the case when the reference radio bearer configuration includes radio bearers for both CS and PS domain then the radio bearer setup procedure has to be performed once per domain. The first radio bearer setup procedure shall perform configuration of the physical channel for the radio bearer combination under test as well as the transport channels for the CS radio bearer(s),also the transport format combination set for only CS radio bearers has to provided. The second radio bearer procedure shall perform the configuration for the transport channel for the PS radio bearers . The Physical channel configuration shall be done for both CS and PS radio bearers combined. Here the transport format combination set for both CS and PS radio bearers shall be provided.

b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 1.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.

d) The SS starts transmitting continous test data for all radio bearers under test. The number of RLC SDUs to transmit every TTI and the size "Test data size" is specified for each sub-test of the actual radio bearer test. See note 3.

e) The SS waits the time T1 equal to 12 times the largest TTI. See note 4

f) SS transmit a MEASUREMENT CONTROL message requesting periodic reporting with a period of T2.

g) SS waits the time equal to 2 times T2

h) During step e) to g) the SS checks that, for all radio bearers under test, the content of the received RLC SDUs have the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

i) The SS opens the UE test loop.

j) Steps b) to i) are repeated for all sub-tests

h) The SS may optionally release the radio bearer.

i) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signaling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 2: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transperant mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transperent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode then, as the test procedure is based on continous downlink transmission of test data in sub-sequent TTIs, the UL RLC SDU size parameter shall be selected to adopt to the uplink data rate and to the uplink/downlink TTI ratio. Selection of UL RLC SDU size for the different radio bearers under test should be such that the UE returns data in sub-sequent TTIs without causing the UE transmission buffer to become full. To achieve this the UL RLC SDU size shall be set to UL TF payload size under test, divided by the ratio between downlink and uplink TTI , minus the size of length indicator and expansion bit, ~~and divided by the ratio between downlink and uplink TTI~~. E.g. for a AM radio bearer having the the uplink RLC payload size equal to 320, the downlink TTI equal to 10 ms, and the uplink TTI equal to 20 ms, then for the transport format 4x336 (TF payload size = 4x320=1280 bits) the UL RLC SDU size parameter should be set to 632 bits (=(1280bits/(20ms/10ms))- 8 bits).

NOTE 3: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transperant mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transperent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

NOTE 4: [10] TS 34.109 clause 5.3.2.9 defines the loopback delay requirement for UE test loop mode 1 to be max 10 times actual TTI of a radio bearer when RLC and MAC is operated in transparent mode. As RLC/MAC may be operated in non-transparent modes depending on the actual reference radio bearer configuration to be tested an additional 2 TTI have been added to secure that UE starts transmitting data in uplink before SS transmit the MEASUREMENT CONTROL message.

3GPP TSG-T WG1 Meeting #25
St Paulís Bay, Malta, 1-5 November 2004

Tdoc ⌘T1-041957

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1027** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 R5: New test cases for A-GPS transfer to third party
Source:	⌘	Qualcomm
Work item code:	⌘	TEI
Date:	⌘	3/11/2004
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Functionality for transfer of positioning results to a third-party LCS client is not covered by A-GPS test cases.
Summary of change:	⌘	The following test case is added: 17.2.3.6 LCS Mobile originated location request/ UE-Based GPS/ Transfer to third party/ Success 17.2.3.7 LCS Mobile originated location request/ UE-Assisted GPS/ Transfer to third party/ Success
Consequences if not approved:	⌘	Transfer-to-third-party functionality remains uncovered by test suite.

Clauses affected:	⌘	17.2.3.6 (new), 17.2.3.7 (new)			
Other specs affected:	⌘	Y / N ☐ / ☒ Other core specifications ☒ / ☐ Test specifications ☐ / ☒ O&M Specifications	⌘	TS 34.123-2	
Other comments:	⌘	Affects REL-5, REL-4 and R99.			

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.2.3 Assisted GPS Mobile Originated Tests

[Ö]

17.2.3.6 LCS Mobile originated location request/ UE-Based GPS/ Transfer to third party/ Success

17.2.3.6.1 Definition

This test case applies to all UEs supporting UE-Based GPS Location Service capabilities and providing a method to trigger an MO-LR request for transfer to 3rd party.

17.2.3.6.2 Conformance requirements

1) The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component.

2) If the UE is requesting that its location be sent to an external LCS client, the message shall include the identity of the LCS client and may include the address of the GMLC through which the LCS client should be accessed.

3) if the IE "Measurement command" has the value "setup":

   2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

   Ö

   2> for any other measurement type:

      3> if the measurement is valid in the current RRC state of the UE:

         4> begin measurements according to the stored control information for this measurement identity.

4) if the IE "Measurement command" has the value "modify":

   2> for all IEs present in the MEASUREMENT CONTROL message:

      3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

         4> if measurement type is set to "UE positioning measurement" and the IE "UE positioning GPS assistance data" is present, for any of the optional IEs "UE positioning GPS reference time", "UE positioning GPS reference UE position", "UE positioning GPS DGPS corrections", "UE positioning GPS ionospheric model", "UE positioning GPS UTC model", "UE positioning GPS acquisition assistance", "UE positioning GPS real-time integrity" that are present in the MEASUREMENT CONTROL message:

            5> replace all instances of the IEs listed above (and all their children) stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the IEs received in the MEASUREMENT CONTROL message;

            5> leave all other stored information elements unchanged in the variable MEASUREMENT_IDENTITY.

5) If the IE "UE positioning GPS Navigation Model" is included, for each satellite, the UE shall:

   1> use IE "Satellite Status" to determine if an update of IE "UE positioning GPS Ephemeris and Clock Correction parameters" has been provided for the satellite indicated by the IE "SatID";

   1> if an update has been provided for this satellite:

      2> act as specified in subclause 8.6.7.19.3.4.

   If the IE "UE positioning GPS Ephemeris and Clock Correction parameters" is included, for each satellite, the UE shall:

1> update the variable UE_POSITIONING_GPS_DATA as follows:

2> store this IE at the position indicated by the IE "Sat ID" in the IE "UE positioning GPS Navigation Model" in the variable UE_POSITIONING_GPS_DATA, possibly overwriting any existing information in this position.

1> act on these GPS ephemeris and clock correction parameters in a manner similar to that specified in [12].

6) The UE shall when a measurement report is triggered:

2> if the UE has been able to calculate a position after performing measurements on the cells included in the variable UE_POSITIONING_OTDOA_DATA_UE_BASED in case of OTDOA or on the list of satellites included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning:

3> include IE "UE positioning Position Estimate Info" in the MEASUREMENT REPORT and set the contents of the IE as follows:

4> if the UE does not support the capability to perform the UE GPS timing of cell frames measurement; or

4> if the IE "GPS timing of Cell wanted" is set to FALSE:

5> include the IE "GPS TOW msec".

4> if IE "Vertical Accuracy" has been included in IE "UE positioning reporting quantity":

5> if the IE "Vertical Accuracy" has been assigned to a value unequal to "0":

6> if the UE has been able to calculate a 3-dimensional position:

7> include IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.

6> if the UE has not been able to calculate a 3-dimensional position:

7> act as if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity".

4> if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity":

5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to value "0":

6> may include IE "Ellipsoid point".

5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to a value unequal to 0:

6> include either IE "Ellipsoid point with uncertainty circle" or IE "Ellipsoid point with uncertainty ellipse" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.

7) The network shall pass the result of the location procedure to the MS by sending a FACILITY message to the MS containing a LCS-MOLR return result component.

8) After the last location request operation the MS shall terminate the dialogue by sending a RELEASE COMPLETE message.

Reference(s):

- Conformance requirements 1, 7 and 8: TS 24.030, subclause 5.1.1

- Conformance requirement 3: TS 25.331, subclause 8.4.1.3

- Conformance requirement 2: TS 23.171, subclause 8.8.1

- Conformance requirement 4: TS 25.331, subclause 8.4.1.3

- Conformance requirement 5: TS 25.331, subclauses 8.6.7.19.3.3a, 8.6.7.19.3.4
- Conformance requirement 6: TS 25.331, subclause 8.6.7.19.1b
- Reference [12] in these conformance requirements denotes document ICD-GPS-200: ìNavstar GPS Space Segment/Navigation User Interfaceî.

17.2.3.6.3 Test Purpose

To verify the UE behaviour in the mobile-originated location request procedure using network-assisted UE-based GPS to request a position estimate from the network for transfer to a third-party LCS client.

17.2.3.6.4 Method of Test

Initial Conditions

- System Simulator:
  - 1 cell, default parameters.
  - Satellites: As specified in 17.2.1.2
- User Equipment:
  - The UE is in state "MM idle" with valid TMSI and CKSN.
  - The UE is in state ìPMM idleî with valid P-TMSI

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS
- Method of triggering an MO-LR request for transfer to 3rd party

Test Procedure

The UE invokes call independent supplementary service through a CM SERVICE REQUEST. The SS initiates authentication and ciphering.

The UE invokes a MO-LR request through the Facility IE in a REGISTER message. The MO-LR request is of type ìlocationEstimateî. The IE ìLCSClientExternalIDî is set to the ID of a valid external LCS client.

The SS orders an A-GPS positioning measurement using MEASUREMENT CONTROL messages, including assistance data.

The UE sends a MEASUREMENT REPORT message containing a location estimate.

The SS sends a FACILITY message confirming that the transfer to the external client succeeded. When UE receives the FACILITY message, it clears the transaction by sending a RELEASE COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	->			The UE establishes an RRC connection for location service. The SS verifies that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìOriginated High Priority Signallingî.
2	->		CM SERVICE REQUEST	The CM service type IE indicates "call independent supplementary serviceî
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	SS			The SS starts ciphering and integrity protection.
6	->		REGISTER	Call Independent SS containing Facility IE with an LCS MO-LR request. The IE ìMOLR-Typeî is set to ìlocationEstimateî. The IE ìLCSClientExternalIDî is set to a valid ID for an external LCS client.
7	<-		MEASUREMENT CONTROL	
8	<-		MEASUREMENT CONTROL	
9	<-		MEASUREMENT CONTROL	
10	->		MEASUREMENT REPORT	
11	<-		FACILITY	LCS MO-LR result message as confirmation that the position estimate was transferred to the requested LCS client.
12	->		RELEASE COMPLETE	The UE terminates the dialogue
13	SS			The SS releases the RRC connection and the test case ends

Specific Message Contents

REGISTER (Step 6)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = LCS-MOLR LCS-MOLRArg molr-Type ->locationEstimate lcsClientExternalID -> ISDN-AddressString
SS version indicator	Value 1 or above

MEASUREMENT CONTROL (Step 7):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the first MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 8):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	Not present
Additional Measurements List	Not present
CHOICE *Measurement type*	
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the second MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 9):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the third MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 10)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	
- CHOICE *Reference time*	
- GPS reference time only	
- GPS TOW msec	Not checked
- CHOICE *Position estimate*	One of éEllipsoid point with uncertainty Circleí or éEllipsoid point with uncertainty Ellipseí or éEllipsoid point with altitude and uncertainty Ellipsoidí
- UE positioning GPS measured results	Not present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

FACILITY (Step 11)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	FACILITY (0x11 1010) Return result = LCS-MOLR _LCS-MOLRRes -> EMPTY

RELEASE COMPLETE (Step 12)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type	RELEASE COMPLETE (0x10 1010)

17.2.3.6.5 Test requirements

After step 5 the UE shall transmit a REGISTER message with an LCS MO-LR request with the IE ìMOLR-Typeî set to ìlocationEstimateî and the IE ìLCSClientExternalIDî set to the ID of a valid external LCS client.

After step 9, the UE shall respond with a MEASUREMENT REPORT message containing the IE ìPosition Estimateî.

After step 12, the UE shall send a RELEASE COMPLETE message.

[Ö]

17.2.3.7 LCS Mobile originated location request/ UE-Assisted GPS/ Transfer to third party/ Success

17.2.3.7.1 Definition

This test case applies to all UEs supporting UE-Assisted GPS Location Service capabilities and providing a method to trigger an MO-LR request for transfer to 3rd party.

17.2.3.7.2 Conformance requirements

1) The MS invokes a MO-LR by sending a REGISTER message to the network containing a LCS-MOLR invoke component.

2) If the UE is requesting that its location be sent to an external LCS client, the message shall include the identity of the LCS client and may include the address of the GMLC through which the LCS client should be accessed.

3) if the IE "Measurement command" has the value "setup":

   2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

   Ö

   2> for any other measurement type:

      3> if the measurement is valid in the current RRC state of the UE:

         4> begin measurements according to the stored control information for this measurement identity.

4) The UE shall:

   1> when a measurement report is triggered:

2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE_POSITIONING_OTDOA_DATA_UE_ASSISTED in case of OTDOA or one satellite included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:

3> if the IE "Vertical Accuracy" is included:

4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.

3> if the IE "Positioning Methods" is set to "GPS":

4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:

5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:

6> if the IE "GPS timing of Cell wanted" is set to TRUE:

7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.

7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and

7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".

6> if the IE "GPS timing of Cell wanted" is set to FALSE:

7> include the IE "GPS TOW msec".

5> if the UE does not support the capability to provide the GPS timing of the cell:

6> include the IE "GPS TOW msec".

5) The network shall pass the result of the location procedure to the MS by sending a FACILITY message to the MS containing a LCS-MOLR return result component.

6) After the last location request operation the MS shall terminate the dialogue by sending a RELEASE COMPLETE message.

Reference(s):

- Conformance requirements 1, 5 and 6: TS 24.030, subclause 5.1.1

- Conformance requirement 2: TS 23.171, subclause 8.8.1

- Conformance requirement 3: TS 25.331, subclause 8.4.1.3

- Conformance requirement 4: TS 25.331, subclauses 8.6.7.19.3.3b

17.2.3.7.3 Test Purpose

To verify the UE behaviour in the mobile-originated location request procedure using network-assisted UE-assisted GPS to request a position estimate from the network for transfer to a third-party LCS client.

17.2.3.7.4 Method of Test

Initial Conditions

- System Simulator:

  - 1 cell, default parameters.

  - Satellites: As specified in 17.2.1.2

- User Equipment:
  - The UE is in state "MM idle" with valid TMSI and CKSN.
  - The UE is in state ìPMM idleî with valid P-TMSI

Related PICS/PIXIT Statements

- UE Assisted Network Assisted GPS
- Method of triggering an MO-LR request for transfer to 3rd party

Test Procedure

The UE invokes call independent supplementary service through a CM SERVICE REQUEST. The SS initiates authentication and ciphering.

The UE invokes a MO-LR request through the Facility IE in a REGISTER message. The MO-LR request is of type ìlocationEstimateî. The IE ìLCSClientExternalIDî is set to the ID of a valid external LCS client.

The SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message~~s~~, including assistance data as specified in section 17.2.1.2. The UE may request additional assistance data by sending a MEASUREMENT REPORT message containing a positioning error indication with the IE ìError reasonî set to ìAssistance Data Missingî. If the UE requests additional assistance data, the SS provides the requested assistance data in one or more MEASUREMENT CONTROL messages.

The UE sends a MEASUREMENT REPORT message containing IE ìUE positioning GPS measured resultsî.

The SS sends a FACILITY message confirming that the transfer to the external client succeeded. When UE receives the FACILITY message, it clears the transaction by sending a RELEASE COMPLETE message.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	->			The UE establishes an RRC connection for location service. The SS verifies that the IE ìEstablishment causeî in the received RRC CONNECTION REQUEST message is set to ìOriginated High Priority Signallingî.
2	->		CM SERVICE REQUEST	The CM service type IE indicates "call independent supplementary serviceî
3	<-		AUTHENTICATION REQUEST	
4	->		AUTHENTICATION RESPONSE	
5	SS			The SS starts ciphering and integrity protection.
6	->		REGISTER	Call Independent SS containing Facility IE with an LCS MO-LR request. The IE ìMOLR-Typeî is set to ìlocationEstimateî. The IE ìLCSClientExternalIDî is set to a valid ID for an external LCS client.
7	<-		MEASUREMENT CONTROL	
8	->		MEASUREMENT REPORT	UE reports positioning measurement results (Option 1) or requests additional assistance data (Option 2).
8a	<-		MEASUREMENT CONTROL	If UE requested additional assistance data in step 8, SS provides the requested data in one or more MEASUREMENT CONTROL messages as specified in section 17.2.1.3.
8b	->		MEASUREMENT REPORT	If UE requested additional assistance data in step 8, this message contains the IE ìUE positioning GPS measured resultsî.
9	<-		FACILITY	LCS MO-LR result message as confirmation that the position estimate was transferred to the requested LCS client.
10	->		RELEASE COMPLETE	The UE terminates the dialogue
11	SS			The SS releases the RRC connection and the test case ends

Specific Message Contents

REGISTER (Step 6)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = LCS-MOLR LCS-MOLRArg molr-Type ->locationEstimate lcsClientExternalID -> ISDN-AddressString
SS version indicator	Value 1 or above

MEASUREMENT CONTROL (Step 7):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	~~FALSE~~TRUE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Steps 8 (Option 1) and 8b)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

MEASUREMENT REPORT (Step 8 (Option 2)):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Not present
- UE positioning error	
- Error reason	Assistance Data Missing
- GPS additional assistance data request	
- Almanac	Not checked
- UTC model	Not checked
- Ionospheric model	Not checked
- Navigation model	Not checked
- DGPS corrections	Not checked
- Reference location	Not checked
- Reference time	Not checked
- Acquisition assistance	Not checked
- Real-time integrity	Not checked
- Navigation model additional data	Not checked
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

MEASUREMENT CONTROL (Step 8a):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

FACILITY (Step 9)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	FACILITY (0x11 1010)
Facility	Return result = LCS-MOLR LCS-MOLRRes -> EMPTY

RELEASE COMPLETE (Step 10)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	RELEASE COMPLETE (0x10 1010)

17.2.3.7.5 Test requirements

After step 5 the UE shall transmit a REGISTER message with an LCS MO-LR request with the IE ìMOLR-Typeî set to ìlocationEstimateî and the IE ìLCSClientExternalIDî set to the ID of a valid external LCS client.

After step 7, the UE shall respond with a MEASUREMENT REPORT message containing the IE ìUE positioning GPS measured resultsî.

After step 9, the UE shall send a RELEASE COMPLETE message.

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St Paulís Bay, Malta, 1-5 November 2004

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CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1028** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 R5: New test cases for A-GPS privacy options
Source:	⌘	Qualcomm
Work item code:	⌘	TEI
Date:	⌘	3/11/2004
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	No coverage exists for privacy options in A-GPS test cases.
Summary of change:	⌘	The following test cases are added: 17.2.4.6 LCS Mobile terminated location request/ UE-Based GPS/ Privacy Verification/ Location Allowed if No Response 17.2.4.7 LCS Mobile terminated location request/ UE-Based GPS/ Privacy Verification/ Location Not Allowed if No Response 17.2.4.8 LCS Mobile terminated location request/ UE-Assisted GPS/ Privacy Verification/ Location Allowed if No Response 17.2.4.9 LCS Mobile terminated location request/ UE-Assist GPS/ Privacy Verification/ Location Not Allowed if No Response
Consequences if not approved:	⌘	Privacy options not covered by test suite.

Clauses affected:	⌘	17.2.4.6, 17.2.4.7, 17.2.4.8, 17.2.4.9 (all new)

Other specs affected:	⌘	Y	N		⌘	
			X	Other core specifications		
		X		Test specifications		TS 34.123-2
			X	O&M Specifications		

Other comments:	⌘	Affects REL-5, REL-4 and R99.

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.2.4 Assisted GPS Mobile Terminated Tests

[Ö]

17.2.4.6 LCS Mobile terminated location request/ UE-Based GPS/ Privacy Verification/ Location Allowed if No Response

17.2.4.6.1 Definition

This test case applies to all UEs supporting UE-Based GPS Location Service capabilities.

17.2.4.6.2 Conformance requirements

1) The network invokes a location notification procedure by sending a REGISTER message containing a LCS-LocationNotification invoke component to the UE. This may be sent either to request verification for MT-LR or to notify about already authorized MT-LR.

2) In case of privacy verification the MS shall respond to the request by sending a RELEASE COMPLETE message containing the mobile subscriber's response in a return result component.

3) If the timer expires in the network before any response from the MS (e.g. due to no response from the user), the network shall interpret this by applying the default treatment defined in GSM 03.71 for GSM and TS 23.171 for UMTS (i.e. disallow location if barred by subscription and allow location if allowed by subscription).

4) if the IE "Measurement command" has the value "setup":

   2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

   Ö

   2> for any other measurement type:

      3> if the measurement is valid in the current RRC state of the UE:

         4> begin measurements according to the stored control information for this measurement identity.

5) if the IE "Measurement command" has the value "modify":

   2> for all IEs present in the MEASUREMENT CONTROL message:

      3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

         4> if measurement type is set to "UE positioning measurement" and the IE "UE positioning GPS assistance data" is present, for any of the optional IEs "UE positioning GPS reference time", "UE positioning GPS reference UE position", "UE positioning GPS DGPS corrections", "UE positioning GPS ionospheric model", "UE positioning GPS UTC model", "UE positioning GPS acquisition assistance", "UE positioning GPS real-time integrity" that are present in the MEASUREMENT CONTROL message:

            5> replace all instances of the IEs listed above (and all their children) stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the IEs received in the MEASUREMENT CONTROL message;

            5> leave all other stored information elements unchanged in the variable MEASUREMENT_IDENTITY.

6) If the IE "UE positioning GPS Navigation Model" is included, for each satellite, the UE shall:

   1> use IE "Satellite Status" to determine if an update of IE "UE positioning GPS Ephemeris and Clock Correction parameters" has been provided for the satellite indicated by the IE "SatID";

   1> if an update has been provided for this satellite:

      2> act as specified in subclause 8.6.7.19.3.4 of TS 25.331.

7) If the IE "UE positioning GPS Ephemeris and Clock Correction parameters" is included, for each satellite, the UE shall:

1> update the variable UE_POSITIONING_GPS_DATA as follows:

2> store this IE at the position indicated by the IE "Sat ID" in the IE "UE positioning GPS Navigation Model" in the variable UE_POSITIONING_GPS_DATA, possibly overwriting any existing information in this position.

1> act on these GPS ephemeris and clock correction parameters in a manner similar to that specified in ICD-GPS-200.

8) If the IE "UE positioning GPS reference time" is included, the UE shall:

1> store the IE "GPS Week" in "UE positioning GPS reference time" in variable UE_POSITIONING_GPS_DATA and use it as the current GPS week;

1> store the IE "GPS TOW msec" in the IE "UE positioning GPS reference time" in variable UE_POSITIONING_GPS_DATA and use it as an estimate of the GPS Time-of-Week at the time of reception of the complete message containing the IE "GPS TOW msec";

NOTE: The UE does not need to apply any compensation on the GPS Time-of-Week.

9) If the IE "UE positioning GPS reference UE position" is included, the UE shall:

1> store this IE in the IE "UE positioning GPS reference UE position" in variable UE_POSITIONING_GPS_DATA; and

1> use it as a priori knowledge of the approximate location of the UE.

10) The UE shall when a measurement report is triggered:

2> if the UE has been able to calculate a position after performing measurements on the cells included in the variable UE_POSITIONING_OTDOA_DATA_UE_BASED in case of OTDOA or on the list of satellites included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning:

3> include IE "UE positioning Position Estimate Info" in the MEASUREMENT REPORT and set the contents of the IE as follows:

4> if the UE does not support the capability to perform the UE GPS timing of cell frames measurement; or

4> if the IE "GPS timing of Cell wanted" is set to FALSE:

5> include the IE "GPS TOW msec".

4> if IE "Vertical Accuracy" has been included in IE "UE positioning reporting quantity":

5> if the IE "Vertical Accuracy" has been assigned to a value unequal to "0":

6> if the UE has been able to calculate a 3-dimensional position:

7> include IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.

6> if the UE has not been able to calculate a 3-dimensional position:

7> act as if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity".

4> if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity":

5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to value "0":

6> may include IE "Ellipsoid point".

5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to a value unequal to 0:

6> include either IE "Ellipsoid point with uncertainty circle" or IE "Ellipsoid point with uncertainty ellipse" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.

References

- Conformance requirement 1, 2 and 3: TS 24.030, clause 4.1.1.

-- Conformance requirements 4 and 5: TS 25.331, subclause 8.4.1.3

- Conformance requirement 6: TS 25.331, clause 8.6.7.19.3.3a.

- Conformance requirement 7: TS 25.331, clause 8.6.7.19.3.4.

- Conformance requirement 8: TS 25.331, clause 8.6.7.19.3.7.

- Conformance requirement 9: TS 25.331, clause 8.6.7.19.3.8.

- Conformance requirement 10: TS 25.331, clause 8.6.7.19.1b.

17.2.4.6.3 Test Purpose

To verify that when the UE receives a REGISTER message, containing a LCS Location Notification Invoke component set to notifyAndVerify-LocationAllowedIfNoResponse, the UE notifies the user of the request and indicates that the default response is location allowed if no response and providing the opportunity to accept or deny the request and sends a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionDenied or permissionGranted as appropriate.

17.2.4.6.4 Method of Test

Initial Conditions

System Simulator (SS):

- 1 cell, default parameters
- Satellites: As specified in 17.2.1.2

UE:

- State CS-DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS

Test Procedure

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse.

The LCS Client Name contained in the USSD text string of the lcs-LocationNotification should be displayed with the option to accept or deny the request and an indication that location will be allowed if no user response is received.

The user accepts the location request. The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionGranted.

The SS orders an A-GPS positioning measurement using MEASUREMENT CONTROL messages.

The UE sends a MEASUREMENT REPORT message including a location estimate.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse.

The user denies the location request. The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionDenied.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse.

The user ignores the location request by taking no action.

The SS orders an A-GPS positioning measurement using MEASUREMENT CONTROL messages.

The UE then sends a MEASUREMENT REPORT message including a location estimate.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse
2	SS			SS starts timer T(LCSN) set to 20 seconds
3	UE			The UE notifies the user of the location request and indicates to the user that location will be allowed in the absence of a response
4	UE			The user accepts the location request within < 20 seconds
5	->		RELEASE COMPLETE	Containing a LocationNotification return result with verificationResponse set to permissionGranted
6	<-		MEASUREMENT CONTROL	
7	<-		MEASUREMENT CONTROL	
8	<-		MEASUREMENT CONTROL	
9	->		MEASUREMENT REPORT	
10	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse
11	SS			SS starts timer T(LCSN) set to 20 seconds
12	UE			The UE notifies the user of the location request and indicates to the user that location will be allowed in the absence of a response
13	UE			The user denies the location request within < 20 seconds
14	->		RELEASE COMPLETE	Containing a LocationNotification return result with verificationResponse set to permissionDenied
15	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse
16	SS			SS starts timer T(LCSN) set to 20 seconds
17	UE			The UE notifies the user of the location request and indicates to the user that location will be allowed in the absence of a response
18	UE			The user does not reply
19	SS			SS waits for 20 seconds (until T(LCSN) expires) to ensure that the UE does not send a RELEASE COMPLETE message.
20	<-		RELEASE COMPLETE	SS terminates the dialogue
21	<-		MEASUREMENT CONTROL	
22	<-		MEASUREMENT CONTROL	
23	<-		MEASUREMENT CONTROL	
24	->		MEASUREMENT REPORT	
25	SS			SS releases the connection and the test case ends

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 5)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 RELEASE COMPLETE (0x10 1010) Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

MEASUREMENT CONTROL (Step 6):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the first MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 7):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	Not present
Additional Measurements List	Not present
CHOICE *Measurement type*	
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the second MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 8):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the third MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 9)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	
- CHOICE *Reference time*	
- GPS reference time only	
- GPS TOW msec	Not checked
- CHOICE *Position estimate*	One of éEllipsoid point with uncertainty Circleí or éEllipsoid point with uncertainty Ellipseí or éEllipsoid point with altitude and uncertainty Ellipsoidí
- UE positioning GPS measured results	Not present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

REGISTER (Step 10)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 14)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	RELEASE COMPLETE (0x10 1010) Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionDenied

REGISTER (Step 15)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 20)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type	RELEASE COMPLETE (0x10 1010)

MEASUREMENT CONTROL (Step 21):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the first MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 22):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	Not present
Additional Measurements List	Not present
CHOICE *Measurement type*	
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the second MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 23):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the third MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 24)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	
- CHOICE *Reference time*	
- GPS reference time only	
- GPS TOW msec	Not checked
- CHOICE *Position estimate*	One of éEllipsoid point with uncertainty Circleí or éEllipsoid point with uncertainty Ellipseí or éEllipsoid point with altitude and uncertainty Ellipsoidí
- UE positioning GPS measured results	Not present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

17.2.4.6.5 Test requirements

After step 4 the UE shall send a RELEASE COMPLETE message with verificationResponse set to permissionGranted.

After step 8 the UE shall respond with a MEASUREMENT REPORT message containing a UE position estimate.

After step 13 the UE shall send a RELEASE COMPLETE message with verificationResponse set to permissionDenied.

After step 23 the UE shall respond with a MEASUREMENT REPORT message containing a UE position estimate.

17.2.4.7 LCS Mobile terminated location request/ UE-Based GPS/ Privacy Verification/ Location Not Allowed if No Response

17.2.4.7.1 Definition

This test case applies to all UEs supporting UE-Based GPS Location Service capabilities.

17.2.4.7.2 Conformance requirements

1) The network invokes a location notification procedure by sending a REGISTER message containing a LCS-LocationNotification invoke component to the UE. This may be sent either to request verification for MT-LR or to notify about already authorized MT-LR.

2) In case of privacy verification the MS shall respond to the request by sending a RELEASE COMPLETE message containing the mobile subscriber's response in a return result component.

3) If the timer expires in the network before any response from the MS (e.g. due to no response from the user), the network shall interpret this by applying the default treatment defined in GSM 03.71 for GSM and TS 23.171 for UMTS (i.e. disallow location if barred by subscription and allow location if allowed by subscription).

4) if the IE "Measurement command" has the value "setup":

   2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

   Ö

   2> for any other measurement type:

      3> if the measurement is valid in the current RRC state of the UE:

         4> begin measurements according to the stored control information for this measurement identity.

5) if the IE "Measurement command" has the value "modify":

   2> for all IEs present in the MEASUREMENT CONTROL message:

      3> if a measurement was stored in the variable MEASUREMENT_IDENTITY associated to the identity by the IE "measurement identity":

         4> if measurement type is set to "UE positioning measurement" and the IE "UE positioning GPS assistance data" is present, for any of the optional IEs "UE positioning GPS reference time", "UE positioning GPS reference UE position", "UE positioning GPS DGPS corrections", "UE positioning GPS ionospheric model", "UE positioning GPS UTC model", "UE positioning GPS acquisition assistance", "UE positioning GPS real-time integrity" that are present in the MEASUREMENT CONTROL message:

            5> replace all instances of the IEs listed above (and all their children) stored in variable MEASUREMENT_IDENTITY associated to the identity indicated by the IE "measurement identity" with the IEs received in the MEASUREMENT CONTROL message;

            5> leave all other stored information elements unchanged in the variable MEASUREMENT_IDENTITY.

6) If the IE "UE positioning GPS Navigation Model" is included, for each satellite, the UE shall:

   1> use IE "Satellite Status" to determine if an update of IE "UE positioning GPS Ephemeris and Clock Correction parameters" has been provided for the satellite indicated by the IE "SatID";

   1> if an update has been provided for this satellite:

      2> act as specified in subclause 8.6.7.19.3.4 of TS 25.331.

7) If the IE "UE positioning GPS Ephemeris and Clock Correction parameters" is included, for each satellite, the UE shall:

1> update the variable UE_POSITIONING_GPS_DATA as follows:

2> store this IE at the position indicated by the IE "Sat ID" in the IE "UE positioning GPS Navigation Model" in the variable UE_POSITIONING_GPS_DATA, possibly overwriting any existing information in this position.

1> act on these GPS ephemeris and clock correction parameters in a manner similar to that specified in ICD-GPS-200.

8) If the IE "UE positioning GPS reference time" is included, the UE shall:

1> store the IE "GPS Week" in "UE positioning GPS reference time" in variable UE_POSITIONING_GPS_DATA and use it as the current GPS week;

1> store the IE "GPS TOW msec" in the IE "UE positioning GPS reference time" in variable UE_POSITIONING_GPS_DATA and use it as an estimate of the GPS Time-of-Week at the time of reception of the complete message containing the IE "GPS TOW msec";

NOTE: The UE does not need to apply any compensation on the GPS Time-of-Week.

9) If the IE "UE positioning GPS reference UE position" is included, the UE shall:

1> store this IE in the IE "UE positioning GPS reference UE position" in variable UE_POSITIONING_GPS_DATA; and

1> use it as a priori knowledge of the approximate location of the UE.

10) The UE shall when a measurement report is triggered:

2> if the UE has been able to calculate a position after performing measurements on the cells included in the variable UE_POSITIONING_OTDOA_DATA_UE_BASED in case of OTDOA or on the list of satellites included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning:

3> include IE "UE positioning Position Estimate Info" in the MEASUREMENT REPORT and set the contents of the IE as follows:

4> if the UE does not support the capability to perform the UE GPS timing of cell frames measurement; or

4> if the IE "GPS timing of Cell wanted" is set to FALSE:

5> include the IE "GPS TOW msec".

4> if IE "Vertical Accuracy" has been included in IE "UE positioning reporting quantity":

5> if the IE "Vertical Accuracy" has been assigned to a value unequal to "0":

6> if the UE has been able to calculate a 3-dimensional position:

7> include IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.

6> if the UE has not been able to calculate a 3-dimensional position:

7> act as if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity".

4> if IE "Vertical Accuracy" has not been included in IE "UE positioning reporting quantity":

5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to value "0":

6> may include IE "Ellipsoid point".

5> if IE "Horizontal Accuracy" in IE "UE positioning reporting quantity" has been assigned to a value unequal to 0:

6> include either IE "Ellipsoid point with uncertainty circle" or IE "Ellipsoid point with uncertainty ellipse" or IE "Ellipsoid point with altitude and uncertainty ellipsoid" as the position estimate.

References

- Conformance requirement 1, 2 and 3: TS 24.030, clause 4.1.1.
- Conformance requirements 4 and 5: TS 25.331, clause 8.4.1.3.
- Conformance requirement 6: TS 25.331, clause 8.6.7.19.3.3a.
- Conformance requirement 7: TS 25.331, clause 8.6.7.19.3.4.
- Conformance requirement 8: TS 25.331, clause 8.6.7.19.3.7.
- Conformance requirement 9: TS 25.331, clause 8.6.7.19.3.8.
- Conformance requirement 10: TS 25.331, clause 8.6.7.19.1b.

17.2.4.7.3 Test Purpose

To verify that when the UE receives a REGISTER message, containing a LCS Location Notification Invoke component set to notifyAndVerify-LocationNotAllowedIfNoResponse, the UE notifies the user of the request and indicates that the default response is location not allowed if no response and providing the opportunity to accept or deny the request and sends a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionDenied or permissionGranted as appropriate.

17.2.4.7.4 Method of Test

Initial Conditions

System Simulator (SS):

- 1 cell, default parameters
- Satellites: As specified in 17.2.1.2

UE:

- State CS-DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108

Related PICS/PIXIT Statements

- UE Based Network Assisted GPS

Test Procedure

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse.

The LCS Client Name contained in the USSD text string of the lcs-LocationNotification should be displayed with the option to accept or deny the request and an indication that location will be not allowed if no user response is received.

The user accepts the location request. The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionGranted.

The SS orders an A-GPS positioning measurement using MEASUREMENT CONTROL messages.

The UE sends a MEASUREMENT REPORT message including a location estimate.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse.

The user denies the location request. The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionDenied.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse.

The user ignores the location request by taking no action. If the timer expires in the SS before any response from the UE is received, the SS interprets this by applying the default treatment LocationNotAllowed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse
2	SS			SS starts timer T(LCSN) set to 20 seconds
3	UE			The UE notifies the user of the location request and indicates to the user that location will be not allowed in the absence of a response
4	UE			The user accepts the location request within < 20 seconds
5	->		RELEASE COMPLETE	Containing a LocationNotification return result with verificationResponse set to permissionGranted
6	<-		MEASUREMENT CONTROL	
7	<-		MEASUREMENT CONTROL	
8	<-		MEASUREMENT CONTROL	
9	->		MEASUREMENT REPORT	
10	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse
11	SS			SS starts timer T(LCSN) set to 20 seconds
12	UE			The UE notifies the user of the location request and indicates to the user that location will be not allowed in the absence of a response
13	UE			The user denies the location request within < 20 seconds
14	->		RELEASE COMPLETE	Containing a LocationNotification return result with verificationResponse set to permissionDenied
15	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse
16	SS			SS starts timer T(LCSN) set to 20 seconds
17	UE			The UE notifies the user of the location request and indicates to the user that location will be not allowed in the absence of a response
18	UE			The user does not reply
19	SS			SS waits for 20 seconds (until T(LCSN) expires) to verify that the UE does not send a RELEASE COMPLETE message.
20	<-		RELEASE COMPLETE	SS terminates the dialogue
21	SS			SS releases the connection and the test case ends

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationNotAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 5)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 RELEASE COMPLETE (0x10 1010) Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

MEASUREMENT CONTROL (Step 6):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the first MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 7):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	Not present
Additional Measurements List	Not present
CHOICE *Measurement type*	
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	
- No reporting	
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the second MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT CONTROL (Step 8):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Modify
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE based
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for the third MEASUREMENT CONTROL message for ìAdequate assistance data for UE-based A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 9)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	
- CHOICE *Reference time*	
- GPS reference time only	
- GPS TOW msec	Not checked
- CHOICE *Position estimate*	One of éEllipsoid point with uncertainty Circleí or éEllipsoid point with uncertainty Ellipseí or éEllipsoid point with altitude and uncertainty Ellipsoidí
- UE positioning GPS measured results	Not present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

REGISTER (Step 10)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationNotAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 14)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	RELEASE COMPLETE (0x10 1010) Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionDenied

REGISTER (Step 15)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationNotAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 20)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type	RELEASE COMPLETE (0x10 1010)

17.2.4.7.5 Test requirements

After step 4 the UE shall send a RELEASE COMPLETE message with verificationResponse set to permissionGranted.

After step 8 the UE shall respond with a MEASUREMENT REPORT message containing a UE position estimate.

After step 13 the UE shall send a RELEASE COMPLETE message with verificationResponse set to permissionDenied.

During step 19 the UE shall not send any RELEASE COMPLETE message.

17.2.4.8 LCS Mobile terminated location request/ UE-Assisted GPS/ Privacy Verification/ Location Allowed if No Response

17.2.4.8.1 Definition

This test case applies to all UEs supporting UE-Assisted GPS Location Service capabilities.

17.2.4.8.2 Conformance requirements

1) The network invokes a location notification procedure by sending a REGISTER message containing a LCS-LocationNotification invoke component to the UE. This may be sent either to request verification for MT-LR or to notify about already authorized MT-LR.

2) In case of privacy verification the MS shall respond to the request by sending a RELEASE COMPLETE message containing the mobile subscriber's response in a return result component.

3) If the timer expires in the network before any response from the MS (e.g. due to no response from the user), the network shall interpret this by applying the default treatment defined in GSM 03.71 for GSM and TS 23.171 for UMTS (i.e. disallow location if barred by subscription and allow location if allowed by subscription).

4) if the IE "Measurement command" has the value "setup":

   2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

   Ö

   2> for any other measurement type:

      3> if the measurement is valid in the current RRC state of the UE:

         4> begin measurements according to the stored control information for this measurement identity.

5) The UE shall:

   1> when a measurement report is triggered:

      2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE_POSITIONING_OTDOA_DATA_UE_ASSISTED in case of OTDOA or one satellite included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:

      3> if the IE "Vertical Accuracy" is included:

         4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.

      3> if the IE "Positioning Methods" is set to "GPS":

         4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:

            5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:

               6> if the IE "GPS timing of Cell wanted" is set to TRUE:

                  7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.

                  7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and

                  7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".

               6> if the IE "GPS timing of Cell wanted" is set to FALSE:

                  7> include the IE "GPS TOW msec".

5> if the UE does not support the capability to provide the GPS timing of the cell:

6> include the IE "GPS TOW msec".

References

- Conformance requirement 1, 2 and 3: TS 24.030, clause 4.1.1.
- Conformance requirement 4: TS 25.331, clause 8.4.1.3.
- Conformance requirement 5: TS 25.331, clause 8.6.7.19.3.3b.

17.2.4.8.3 Test Purpose

To verify that when the UE receives a REGISTER message, containing a LCS Location Notification Invoke component set to notifyAndVerify-LocationAllowedIfNoResponse, the UE notifies the user of the request and indicates that the default response is location allowed if no response and providing the opportunity to accept or deny the request and sends a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionDenied or permissionGranted as appropriate.

17.2.4.8.4 Method of Test

Initial Conditions

System Simulator (SS):

- 1 cell, default parameters
- Satellites: As specified in 17.2.1.2

UE:

- State CS-DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108

Related PICS/PIXIT Statements

- UE Assisted Network Assisted GPS

Test Procedure

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse.

The LCS Client Name contained in the USSD text string of the lcs-LocationNotification should be displayed with the option to accept or deny the request and an indication that location will be allowed if no user response is received.

The user accepts the location request. The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionGranted.

The SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message~~s~~, including assistance data as specified in section 17.2.1.2. The UE may request additional assistance data by sending a MEASUREMENT REPORT message containing a positioning error indication with the IE ì Error reasonî set to ì Assistance Data Missingî. If the UE requests additional assistance data, the SS provides the requested assistance data in one or more MEASUREMENT CONTROL messages.

The UE sends a MEASUREMENT REPORT message including IE ì UE positioning GPS measured resultsî.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse.

The user denies the location request. The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionDenied.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse.

The user ignores the location request by taking no action. If the timer expires in the SS before any response from the UE is received, the SS interprets this by applying the default treatment LocationAllowed.

The SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message~~s~~, including assistance data as specified in section 17.2.1.2. The UE may request additional assistance data by sending a MEASUREMENT REPORT message containing a positioning error indication with the IE ì Error reasonî set to ì Assistance Data Missingî . If the UE requests additional assistance data, the SS provides the requested assistance data in one or more MEASUREMENT CONTROL messages.

The UE then sends a MEASUREMENT REPORT message including IE ì UE positioning GPS measured resultsî .

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse
2	SS			SS starts timer T(LCSN) set to 20 seconds
3	UE			The UE notifies the user of the location request and indicates to the user that location will be allowed in the absence of a response
4	UE			The user accepts the location request within < 20 seconds
5	->		RELEASE COMPLETE	Containing a LocationNotification return result with verificationResponse set to permissionGranted
6	<-		MEASUREMENT CONTROL	Assistance data set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
7	->		MEASUREMENT REPORT	UE reports positioning measurement results (Option 1) or requests additional assistance data (Option 2).
7a	<-		MEASUREMENT CONTROL	If UE requested additional assistance data in step 7, SS provides the requested data in one or more MEASUREMENT CONTROL messages as specified in section 17.2.1.3.
7b	->		MEASUREMENT REPORT	If UE requested additional assistance data in step 7, this message contains the IE ìUE positioning GPS measured resultsî.
8	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse
9	SS			SS starts timer T(LCSN) set to 20 seconds
10	UE			The UE notifies the user of the location request and indicates to the user that location will be allowed in the absence of a response
11	UE			The user denies the location request within < 20 seconds
12	->		RELEASE COMPLETE	Containing a LocationNotification return result with verificationResponse set to permissionDenied
13	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationAllowedIfNoResponse
14	SS			SS starts timer T(LCSN) set to 20 seconds
15	UE			The UE notifies the user of the location request and indicates to the user that location will be allowed in the absence of a response
16	UE			The user does not reply
17	SS			SS waits for 20 seconds (until T(LCSN) expires) to verify that the UE does not send a RELEASE COMPLETE message.
18	<-		RELEASE COMPLETE	SS terminates the dialogue
19	<-		MEASUREMENT CONTROL	Assistance data set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
20	->		MEASUREMENT REPORT	UE reports positioning measurement results (Option 1) or requests additional assistance data (Option 2).
20a	<-		MEASUREMENT CONTROL	If UE requested additional assistance data in step 20, SS provides the requested data in one or more MEASUREMENT CONTROL messages as specified in section 17.2.1.3.
20b	->		MEASUREMENT REPORT	If UE requested additional assistance data in step 20, this message contains the IE ìUE positioning GPS measured resultsî.

21	SS		SS releases the connection and the test case ends

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 5)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	RELEASE COMPLETE (0x10 1010) Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

MEASUREMENT CONTROL (Step 6):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	~~FALSE~~TRUE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Steps 7 (Option 1) and 7b)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

MEASUREMENT REPORT (Step 7 (Option 2)):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Not present
- UE positioning error	
- Error reason	Assistance Data Missing
- GPS additional assistance data request	
- Almanac	Not checked
- UTC model	Not checked
- Ionospheric model	Not checked
- Navigation model	Not checked
- DGPS corrections	Not checked
- Reference location	Not checked
- Reference time	Not checked
- Acquisition assistance	Not checked
- Real-time integrity	Not checked
- Navigation model additional data	Not checked
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

MEASUREMENT CONTROL (Step 7a):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

REGISTER (Step 8)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 12)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	RELEASE COMPLETE (0x10 1010) Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionDenied

REGISTER (Step 13)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 18)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type	RELEASE COMPLETE (0x10 1010)

MEASUREMENT CONTROL (Step 19):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	~~FALSE~~TRUE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Steps 20 (Option 1) and 20b)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

MEASUREMENT REPORT (Step 20 (Option 2)):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Not present
- UE positioning error	
- Error reason	Assistance Data Missing
- GPS additional assistance data request	
- Almanac	Not checked
- UTC model	Not checked
- Ionospheric model	Not checked
- Navigation model	Not checked
- DGPS corrections	Not checked
- Reference location	Not checked
- Reference time	Not checked
- Acquisition assistance	Not checked
- Real-time integrity	Not checked
- Navigation model additional data	Not checked
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

MEASUREMENT CONTROL (Step 20a):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

17.2.4.8.5 Test requirements

After step 4 the UE shall send a RELEASE COMPLETE message with verificationResponse set to permissionGranted.

After step 6 the UE shall respond with a MEASUREMENT REPORT message containing the IE ì UE positioning GPS measured resultsî .

After step 11 the UE shall send a RELEASE COMPLETE message with verificationResponse set to permissionDenied.

After step 19 the UE shall respond with a MEASUREMENT REPORT message containing the IE ì UE positioning GPS measured resultsî .

17.2.4.9 LCS Mobile terminated location request/ UE-Assisted GPS/ Privacy Verification/ Location Not Allowed if No Response

17.2.4.9.1 Definition

This test case applies to all UEs supporting UE-Assisted GPS Location Service capabilities.

17.2.4.9.2 Conformance requirements

1) The network invokes a location notification procedure by sending a REGISTER message containing a LCS-LocationNotification invoke component to the UE. This may be sent either to request verification for MT-LR or to notify about already authorized MT-LR.

2) In case of privacy verification the MS shall respond to the request by sending a RELEASE COMPLETE message containing the mobile subscriber's response in a return result component.

3) If the timer expires in the network before any response from the MS (e.g. due to no response from the user), the network shall interpret this by applying the default treatment defined in GSM 03.71 for GSM and TS 23.171 for UMTS (i.e. disallow location if barred by subscription and allow location if allowed by subscription).

4) if the IE "Measurement command" has the value "setup":

2> store this measurement in the variable MEASUREMENT_IDENTITY according to the IE "measurement identity", first releasing any previously stored measurement with that identity if that exists;

Ö

2> for any other measurement type:

3> if the measurement is valid in the current RRC state of the UE:

4> begin measurements according to the stored control information for this measurement identity.

5) The UE shall:

1> when a measurement report is triggered:

2> if the UE was able to perform measurements on at least one neighbour cell included in the variable UE_POSITIONING_OTDOA_DATA_UE_ASSISTED in case of OTDOA or one satellite included in the variable UE_POSITIONING_GPS_DATA in case of GPS positioning or one cell from the active set in case of CELL ID:

3> if the IE "Vertical Accuracy" is included:

4> interpret the presence of this IE to indicate that the UTRAN desires to compute a 3-dimensional position estimate.

3> if the IE "Positioning Methods" is set to "GPS":

4> include the IE "UE positioning GPS measured results" in the measurement report and set the contents of the IE as follows:

5> if the UE supports the capability to provide the GPS timing of the cell frames measurement:

6> if the IE "GPS timing of Cell wanted" is set to TRUE:

7> perform the UE GPS timing of cell frames measurement on the serving cell or on one cell of the active set.

7> include the IE "Primary CPICH Info" for FDD or the IE "cell parameters id" for TDD; and

7> include the IE "Reference SFN" and the IE "UE GPS timing of cell frames".

6> if the IE "GPS timing of Cell wanted" is set to FALSE:

7> include the IE "GPS TOW msec".

5> if the UE does not support the capability to provide the GPS timing of the cell:

6> include the IE "GPS TOW msec".

References

- Conformance requirement 1, 2 and 3: TS 24.030, clause 4.1.1.
- Conformance requirement 4: TS 25.331, clause 8.4.1.3.
- Conformance requirement 5: TS 25.331, clause 8.6.7.19.3.3b.

17.2.4.9.3 Test Purpose

To verify that when the UE receives a REGISTER message, containing a LCS Location Notification Invoke component set to notifyAndVerify-LocationNotAllowedIfNoResponse, the UE notifies the user of the request and indicates that the default response is location not allowed if no response and providing the opportunity to accept or deny the request and sends a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionDenied or permissionGranted as appropriate.

17.2.4.9.4 Method of Test

Initial Conditions

System Simulator (SS):

- 1 cell, default parameters
- Satellites: As specified in 17.2.1.2

UE:

- State CS-DCCH+DTCH (state 6-9) as specified in clause 7.4 of TS 34.108

Related PICS/PIXIT Statements

- UE Assisted Network Assisted GPS

Test Procedure

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse.

The LCS Client Name contained in the USSD text string of the lcs-LocationNotification should be displayed with the option to accept or deny the request and an indication that location will be allowed if no user response is received.

The user accepts the location request. The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionGranted.

The SS orders an A-GPS positioning measurement using a MEASUREMENT CONTROL message~~s~~, including assistance data as specified in section 17.2.1.2. The UE may request additional assistance data by sending a MEASUREMENT REPORT message containing a positioning error indication with the IE ì Error reasonî set to ì Assistance Data Missingî. If the UE requests additional assistance data, the SS provides the requested assistance data in one or more MEASUREMENT CONTROL messages.

The UE sends a MEASUREMENT REPORT message including IE ì UE positioning GPS measured resultsî.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse.

The user denies the location request. The UE responds with a RELEASE COMPLETE message containing a LocationNotification return result with verificationResponse set to permissionDenied.

The SS sends a REGISTER message containing a Facility IE containing a LCS Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse.

The user ignores the location request by taking no action. If the timer expires in the SS before any response from the UE is received, the SS interprets this by applying the default treatment LocationNotAllowed.

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
1	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse
2	SS			SS starts timer T(LCSN) set to 20 seconds
3	UE			The UE notifies the user of the location request and indicates to the user that location will be not allowed in the absence of a response
4	UE			The user accepts the location request within < 20 seconds
5	->		RELEASE COMPLETE	Containing a LocationNotification return result with verificationResponse set to permissionGranted
6	<-		MEASUREMENT CONTROL	
7	->		MEASUREMENT REPORT	UE reports positioning measurement results (Option 1) or requests additional assistance data (Option 2).
7a	<-		MEASUREMENT CONTROL	If UE requested additional assistance data in step 7, SS provides the requested data in one or more MEASUREMENT CONTROL messages as specified in section 17.2.1.3.
7b	->		MEASUREMENT REPORT	If UE requested additional assistance data in step 7, this message contains the IE ¡UE positioning GPS measured resultsî.
8	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse
9	SS			SS starts timer T(LCSN) set to 20 seconds
10	UE			The UE notifies the user of the location request and indicates to the user that location will be not allowed in the absence of a response
11	UE			The user denies the location request within < 20 seconds
12	->		RELEASE COMPLETE	Containing a LocationNotification return result with verificationResponse set to permissionDenied
13	<-		REGISTER	Call Independent SS containing Facility IE Location Notification Invoke message set to notifyAndVerify-LocationNotAllowedIfNoResponse
14	SS			SS starts timer T(LCSN) set to 20 seconds
15	UE			The UE notifies the user of the location request and indicates to the user that location will be not allowed in the absence of a response
16	UE			The user does not reply
17	SS			SS waits for 20 seconds (until T(LCSN) expires) to verify that the UE does not send a RELEASE COMPLETE message.
18	<-		RELEASE COMPLETE	SS terminates the dialogue
19	SS			SS releases the connection and the test case ends

Specific Message Contents

REGISTER (Step 1)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationNotAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 5)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	 RELEASE COMPLETE (0x10 1010) Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionGranted

MEASUREMENT CONTROL (Step 6):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	~~FALSE~~TRUE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Steps 7 (Option 1) and 7b)

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Present
- UE positioning error	Not present
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

MEASUREMENT REPORT (Step 7 (Option 2)):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measured Results	
- CHOICE *Measurement*	
- UE positioning measured results	
- UE positioning OTDOA measured results	Not present
- UE positioning position estimate info	Not present
- UE positioning GPS measured results	Not present
- UE positioning error	
- Error reason	Assistance Data Missing
- GPS additional assistance data request	
- Almanac	Not checked
- UTC model	Not checked
- Ionospheric model	Not checked
- Navigation model	Not checked
- DGPS corrections	Not checked
- Reference location	Not checked
- Reference time	Not checked
- Acquisition assistance	Not checked
- Real-time integrity	Not checked
- Navigation model additional data	Not checked
Measured Results on RACH	Not present
Additional Measured Results	Not present
Event Results	Not present

MEASUREMENT CONTROL (Step 7a):

Information element	Value/remark
Measurement Information Elements	
Measurement Identity	10
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement report transfer mode	Acknowledged mode RLC
- Periodical reporting / Event trigger reporting mode	Periodical reporting
Additional Measurements List	Not present
CHOICE *Measurement type*	UE positioning measurement
- UE positioning measurement	
- UE positioning reporting quantity	
- Method type	UE assisted
- Positioning methods	GPS
- Response time	128
- Horizontal accuracy	Set according to 17.2.1.2 (unequal to 0)
- Vertical accuracy	Set according to 17.2.1.2 (unequal to 0)
- GPS timing of cell wanted	FALSE
- Multiple sets	FALSE
- Additional assistance data request	FALSE
- Environmental characterization	Not present
- Measurement validity	
- UE state	All states
- CHOICE *Reporting criteria*	Periodical reporting criteria
- Amount of reporting	1
- Reporting interval	64000
- UE pos OTDOA assistance data for UE-assisted	Not present
- UE pos OTDOA assistance data for UE-based	Not present
- UE positioning GPS assistance data	Set as specified for ìAdequate assistance data for UE-assisted A-GPSî in 17.2.1.3
Physical Channel Information Elements	
DPCH compressed mode status info	Not present

REGISTER (Step 8)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	REGISTER (0x11 1011)
Facility	Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationNotAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 12)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier	
Message type	RELEASE COMPLETE (0x10 1010)
Facility	Return result = LCS-LocationNotification LocationNotificationRes verificationResponse -> permissionDenied

REGISTER (Step 13)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type Facility	REGISTER (0x11 1011) Invoke = LCS-LocationNotification LocationNotificationArg notificationType -> notifyAndVerify-LocationNotAllowedIfNoResponse locationType -> current Location lcsClientExternalID -> externalAddress lcsClientName ->dataCodingScheme nameString

RELEASE COMPLETE (Step 18)

Information element	Value/remark
Protocol Discriminator	Call Independent SS message (1011)
Transaction identifier Message type	RELEASE COMPLETE (0x10 1010)

17.2.4.9.5 Test requirements

After step 4 the UE shall send a RELEASE COMPLETE message with verificationResponse set to permissionGranted.

After step 6 the UE shall respond with a MEASUREMENT REPORT message containing the IE ìUE positioning GPS measured resultsî.

After step 11 the UE shall send a RELEASE COMPLETE message with verificationResponse set to permissionDenied.

During step 17 the UE shall not send any RELEASE COMPLETE message.

3GPP TSG-T WG1 Meeting #25
St Paulís Bay, Malta, 1-5 November 2004

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CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1029** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 R5: Assistance data for UE-assisted A-GPS
Source:	⌘	Qualcomm
Work item code:	⌘	TEI
Date:	⌘	3/11/2004
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	1) Typo in message name in assistance data for UE-based A-GPS. 2) Adequate assistance data for UE-assisted A-GPS test cases has not been specified.
Summary of change:	⌘	1) Message name corrected from MEASUREMENT REPORT to MEASUREMENT CONTROL. 2) Table inserted specifying adequate assistance data.
Consequences if not approved:	⌘	1) Typo will remain. 2) UE-assisted A-GPS test cases will be incompletely specified.

Clauses affected:	⌘	17.2.1.3.1, 17.2.1.3.3

Other specs affected: ⌘

Y	N	
	X	Other core specifications
	X	Test specifications
	X	O&M Specifications

⌘

Other comments: ⌘ Affects REL-5, REL-4 and R99.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

17.2.1 Default conditions during LCS tests

[Ö]

17.2.1.3.1 Adequate assistance data for UE-based A-GPS

For UE-based test cases requiring adequate assistance data, the IE ì UE positioning GPS assistance dataî is spread across three separate MEASUREMENT CONTROL messages, and set as follows:

NOTE: If the SS generates signals from less than 12 satellites, it shall still provide 12 items of navigation model information, including information for fictive satellites whose signals are not generated by the SS and thus are impossible for the UE to receive. Moreover, the navigation model information for the satellites generated by the SS shall be distributed equally among the transmitted MEASUREMENT ~~REPORT~~ CONTROL messages.

[Ö]

17.2.1.3.3 Adequate assistance data for UE-assisted A-GPS

For UE-assisted test cases requiring adequate assistance data, the IE ì UE positioning GPS assistance dataî is set as follows for the first MEASUREMENT CONTROL message:

~~FFS.~~

- UE positioning GPS assistance data	
- UE positioning GPS reference time	
- GPS week	Set according to 17.2.1.2
- GPS TOW msec	Set according to 17.2.1.2
- UTRAN GPS reference time	Not present
- SFN-TOW uncertainty	Not present
- $T_{UTRAN-GPS}$ drift rate	Not present
- GPS TOW assist	Set according to 17.2.1.2 (FFS)
- UE positioning GPS reference UE position	Not present
- UE positioning GPS DGPS corrections	Not present
- UE positioning GPS navigation model	Not present
- UE positioning GPS ionospheric model	Not present
- UE positioning GPS UTC model	Not present
- UE positioning GPS almanac	Not present
- UE positioning GPS acquisition assistance	
- GPS TOW msec	Set according to 17.2.1.2
- UTRAN GPS reference time	Not present
- Satellite information	Set according to 17.2.1.2
~~- UE positioning GPS acquisition assistance~~	
~~- GPS TOW msec~~	~~Set according to 17.2.1.2~~
~~- UTRAN GPS reference time~~	~~Not present~~
~~- Satellite information~~	~~Set according to 17.2.1.2~~
~~- Extra Doppler~~	~~Set according to 17.2.1.2~~
~~- Azimuth and Elevation~~	~~Set according to 17.2.1.2~~
- UE positioning GPS real-time integrity	Not present

If the UE requests further assistance data, the SS sends subsequent MEASUREMENT CONTROL messages containing the assistance data fields requested by the UE.

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Malta, 1st ñ 5th November 2004

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CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** 1030 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

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Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Update of radio bearer test case 14.2.62 for Wideband AMR
Source:	⌘	Ericsson, Vodafone
Work item code:	⌘	TEI
Date:	⌘	31/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 *(GSM Phase 2)*
R96 *(Release 1996)*
R97 *(Release 1997)*
R98 *(Release 1998)*
R99 *(Release 1999)*
Rel-4 *(Release 4)*
Rel-5 *(Release 5)*
Rel-6 *(Release 6)*

Reason for change:	⌘	The rate control for wideband AMR is performed by UTRAN through a dedicated downlink signaling channel, SRB#5. SRB#5 as well as the TFC subsets, which are associated with the TFC subset identity signalled on SRB#5, is set up as part of the radio bearer setup procedure. To achieve a more representative test case for wideband AMR then test case 14.2.62 need to be modified such that the restriction of UL TFCs is controlled by signalling the TFC subset identity on SRB#5 instead as using the transport format restriction procedure.
Summary of change:	⌘	1. New section 14.1.1a added containing a generic test procedure for wideband AMR radio bearer test cases. 2. In sub-test table: a. Renamed column ìRestricted UL TFCIsî to ìTFC subset identityî b. Replaced the list of restricted UL TFCIs with TFC subset identity numbers correspondent to the transport formats under test. See 34.108, clause 6.10.2.4.1.62 for the definition of the subsets associated with the TFC subset identy values 0,1 and 2. c. Updated the notes accordingly. 3. Changed reference to the generic test procedure from 14.1.1 to 14.1.1a.
Consequences if not approved:	⌘	Wideband AMR test case not fully specified.

Clauses affected:	⌘	14.1.1a (new) and 14.2.62

Y | N

Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of first modified section>

14 Interoperability Radio Bearer Tests

14.1 General information for interoperability radio bearer tests

The purpose of the interoperability radio bearer test cases are to ensure interoperability of UE's in different regions and networks. For this purpose representative radio bearer configurations that will be used in real network implementations have been defined in TS 34.108 [9], clause 6.10.

The applicability of radio bearer tests is dependent on the UE uplink and downlink radio access capabilities and UE support tele- and bearer-services. See TS 34.123-2, annex B for applicability of the specific test cases.

14.1.1 Generic radio bearer test procedure for single RB configurations

This procedure is used to test single radio bearer configurations and speech only radio bearers. For testing of multiple radio bearer combinations as well as for testing simultaneous transmission and reception of user data and signalling data then the procedure as specified in 14.1.2 should be used.

Initial conditions

UE in idle mode

Test procedure

a) The SS establish setup the reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test.

b) The SS limits the UE allowed uplink transport format combinations according to the "Restricted UL TFCIs", as specified for the sub-test of the actual radio bearer test, using the RRC transport format combination control procedure. See note 1.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.

d) The SS transmits, for all radio bearers under test, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test. See note 3.

e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

f) The SS opens the UE test loop.

g) Steps b) to f) are repeated for all sub-tests

h) The SS may optionally release the radio bearer.

i) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The restricted set of TFCIs shall contain all possible TFCI that could happen in a sub-test. The actual TTI of the different radio bearers and signaling radio bearers as well as the possible UE processing delays shall be taken into consideration. The restricted set of TFCIs must comply with the minimum set of TFCIs as specified in TS 25.331, clause 8.6.5.2.

NOTE 2: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transperant mode in downlink and is not configured for segmented operation then the radio bearer test case shall set the UL RLC SDU size equal to the UL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transperent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode then the UL RLC SDU size parameter shall be selected to achieve loop back of all test data received in the DL RLC SDU, i.e. the UL RLC SDU size is set to the nearest multiple of the payload size of the UL TF under test minus the size of the length indicator and expansion bit which is equal or bigger than the test data size. For some reference radio bearer configurations this may cause the UE to return the UL RLC SDU in more than one TTI, i.e. in case no UL TF is available to cover the UL RLC SDU size. However, as the test procedure only send downlink test data once there is no risk for the UE transmission buffer to become full even if the returned RLC SDUs need to be tranmitted in more than one TTI.

NOTE 3: Selection of test data size:
For the case when the reference radio bearer configuration under test uses RLC transperant mode in downlink and is not configured for segmented operation then the radio bearer test case shall use a DL RLC SDU size (defined by the "Test data size" parameter) equal to the DL RLC PDU size. See [7] TS 25.322 for details regarding UE operation in RLC transperent mode. In case the reference radio bearer configuration under test does not use RLC transparent mode in downlink, the DL RLC SDU size/ test data size shall be set equal to the payload size of the DL TF under test minus the size of the length indicator and the expansion bit.

Expected sequence

CS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		PAGING RESPONSE (DCCH)	RR
6a	<--		AUTHENTICATION REQUEST	
6b	-->		AUTHENTICATION RESPONSE	
6c	<--		SECURITY MODE COMMAND	
6d	-->		SECURITY MODE COMPLETE	

PS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6a	-->		SERVICE REQUEST (DCCH)	GMM
6b	<--		SECURITY MODE COMMAND	RRC see note 1
6c	-->		SECURITY MODE COMPLETE	RRC see note 1

Note 1 In addition to activate integrity protection Step 6b and Step 6c are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.

Step	Direction		Message	Comments
	UE	SS		
1..6	<-- -->		Paging	Use the CS paging procedure for testing of CS and combined CS/PS reference radio bearer configurations. Use the PS paging procedure for testing of PS reference radio bearer configurations.
7	<--		ACTIVATE RB TEST MODE (DCCH)	TC
8	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9	<--		RADIO BEARER SETUP (DCCH)	RRC. Channelization code must be set to SF ñ 1 for the DL DPCH configured. Secondary Scrambling Code IE must be omittedFor the PS radio bearer the ëpdcp infoí IE must be omitted.
10	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11	<--		TRANSPORT FORMAT COMBINATION CONTROL (DCCH)	RRC Transport format combinations is limited to "Restricted UL TFCIs", as specified for the sub-test
12	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14	<--		DOWNLINK RLC SDU	Send test data using the downlink transport format combination under test
15	-->		UPLINK RLC SDU	
16	<--		OPEN UE TEST LOOP (DCCH)	TC
17	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every sub-test.	
19			RB RELEASE	RRC Optional step
20	<--		DEACTIVATE RB TEST MODE	TC Optional step
21	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

14.1.1a Generic radio bearer test procedure for standalone wideband AMR RB configurations

This procedure is used to test single wideband AMR radio bearer configurations.

Initial conditions

UE in idle mode

Test procedure

a) The SS establish the wideband AMR reference radio bearer configuration as specified in TS 34.108, clause 6.10 for the actual radio bearer test. As part of the RADIO BEARER SETUP the TFC subsets as defined for the actual radio bearer configuration is setup.

b) The SS signals the ì TFC subset identityî on SRB#5 as specified for the sub-test of the actual wideband AMR radio bearer test. See note 1.

c) The SS closes the test loop using UE test loop mode 1 and setting the UL RLC SDU size parameter, for all radio bearers under test, according to the "UL RLC SDU size" value as specified for the sub-test of the actual radio bearer test. See note 2.

d) The SS transmits, for all radio bearers under test, one or more RLC SDUs having the size equal to the "Test data size" as specified for the sub-test of the actual radio bearer test. See note 3.

e) The SS checks that, for all radio bearers under test, the content of the received RLC SDU has the correct content and is received having the correct transport format. See TS 34.109 [10] clause 5.3.2.6.2 for details regarding the UE loopback of RLC SDUs.

f) The SS opens the UE test loop.

g) Steps b) to f) are repeated for all sub-tests

h) The SS may optionally release the radio bearer.

i) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The TFC subset associated with the signalled ì TFC subset identityî is defined by the actual wideband AMR reference radio bearer under test.

NOTE 2: Selection of UL RLC SDU size parameter:
The UL RLC SDU size parameter is set equal to the UL RLC PDU size.

NOTE 3: Selection of test data size:
The test data size is set equal to the DL RLC PDU size.

Expected sequence

CS paging procedure

Step	Direction		Message	Comments
	UE	SS		
1		<--	SYSTEM INFORMATION (BCCH)	Broadcast
2		<--	PAGING TYPE 1 (PCCH)	Paging (CS domain, TMSI)
3		-->	RRC CONNECTION REQUEST (CCCH)	RRC
4		<--	RRC CONNECTION SETUP (CCCH)	RRC
5		-->	RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6		-->	PAGING RESPONSE (DCCH)	RR
6a		<--	AUTHENTICATION REQUEST	
6b		-->	AUTHENTICATION RESPONSE	
6c		<--	SECURITY MODE COMMAND	
6d		-->	SECURITY MODE COMPLETE	
7		<--	ACTIVATE RB TEST MODE (DCCH)	TC
8		-->	ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
9		<--	RADIO BEARER SETUP (DCCH)	RRC. The TFC subsets associated with the signalling of the TFC subset identity on SRB#5 aare setup as part of the RADIO BEARER SETUP message. Channelization code must be set to SF ñ 1 for the DL DPCH configured. Secondary Scrambling Code IE must be omitted.
10		-->	RADIO BEARER SETUP COMPLETE (DCCH)	RRC
11		<--	TFS subset identity	SRB#5
12		<--	CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is for every active radio bearer set to "UL RLC SDU size", as specified for the sub-test.
13		-->	CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
14		<--	DOWNLINK RLC SDU	Send test data using the downlink transport format combination under test
15		-->	UPLINK RLC SDU	
16		<--	OPEN UE TEST LOOP (DCCH)	TC
17		-->	OPEN UE TEST LOOP COMPLETE (DCCH)	TC
18			Repeat steps 11 to 17 for every sub-test.	
19			RB RELEASE	RRC Optional step
20		<--	DEACTIVATE RB TEST MODE	TC Optional step
21		-->	DEACTIVATE RB TEST MODE COMPLETE	TC Optional step

<End of modified section>

<Start of next modified section>

14.2.62 Conversational / speech / UL:(12.65 8.85 6.6) DL:(12.65 8.85 6.6) kbps / CS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH + DL:0.15 kbps SRB#5 for DCCH.

14.2.62.1 Conformance requirement

See clause 14.2.4.1.

14.2.62.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.62.

14.2.62.3 Method of test

Uplink TFS:

	TFI	RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH
TFS	TF0, bits	0x72	0x181	0x148
	TF1, bits	1x40	1x78	1x148
	TF2, bits	1x54	1x113	N/A
	TF3, bits	1x64	1x181	N/A
	TF4, bits	1x72	N/A	N/A

Uplink TFCS:

TFCI	(RB5, RB6, DCCH)
UL_TFC0	(TF0, TF0, TF0)
UL_TFC1	(TF1, TF0, TF0)
UL_TFC2	(TF2, TF1, TF0)
UL_TFC3	(TF3, TF2, TF0)
UL_TFC4	(TF4, TF3, TF0)
UL_TFC5	(TF0, TF0, TF1)
UL_TFC6	(TF1, TF0, TF1)
UL_TFC7	(TF2, TF1, TF1)
UL_TFC8	(TF3, TF2, TF1)
UL_TFC9	(TF4, TF3, TF1)

Downlink TFS:

		RB5 (RAB subflow #1)	RB6 (RAB subflow #2)	DCCH1	DCCH2 (SRB #5)
TFS	TF0, bits	1x0	0x181	0x148	0x3
	TF1, bits	1x40	1x78	1x148	1x3
	TF2, bits	1x54	1x113	N/A	N/A
	TF3, bits	1x64	1x181	N/A	N/A
	TF4, bits	1x72	N/A	N/A	N/A

Downlink TFCS:

TFCI	(RB5, RB6, DCCH1, DCCH2)
DL_TFC0	(TF0, TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0, TF0)
DL_TFC2	(TF2, TF1, TF0, TF0)
DL_TFC3	(TF3, TF2, TF0, TF0)
DL_TFC4	(TF4, TF3, TF0, TF0)
DL_TFC5	(TF0, TF0, TF1, TF0)
DL_TFC6	(TF1, TF0, TF1, TF0)
DL_TFC7	(TF2, TF1, TF1, TF0)
DL_TFC8	(TF3, TF2, TF1, TF0)
DL_TFC9	(TF4, TF3, TF1, TF0)
DL_TFC10	(TF0, TF0, TF0, TF1)
DL_TFC11	(TF1, TF0, TF0, TF1)
DL_TFC12	(TF2, TF1, TF0, TF1)
DL_TFC13	(TF3, TF2, TF0, TF1)
DL_TFC14	(TF4, TF3, TF0, TF1)
DL_TFC15	(TF0, TF0, TF1, TF1)
DL_TFC16	(TF1, TF0, TF1, TF1)
DL_TFC17	(TF2, TF1, TF1, TF1)
DL_TFC18	(TF3, TF2, TF1, TF1)
DL_TFC19	(TF4, TF3, TF1, TF1)

Sub-tests:

Sub-test	Downlink TFCS under test	Uplink TFCS Under test	Implicitely tested	TFC subset identity ~~Restricted UL TFCIs~~ (note 1)	UL RLC SDU size (note 2)	Test data size (note 2)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC5	0~~UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC6~~	RB5: 40 bits RB6: 181 bits	RB5: 40 bits RB6: No data
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC5	0~~UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC7~~	RB5: 54 bits RB6: 78 bits	RB5: 54 bits RB6: 78 bits
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC5	1~~UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC8~~	RB5: 64 bits RB6: 113 bits	RB5: 64 bits RB6: 113 bits
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC10, UL_TFC0, UL_TFC5	2~~UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4, UL_TFC5, UL_TFC9~~	RB5: 72 bits RB6: 181 bits	RB5: 72 bits RB6: 181 bits
NOTE 1: TFC subset identity shall be signalled by the SS on the downlink SRB#5, see generic test procedure in clause 14.1.1a.~~UL_TFC0, UL_TFC1, UL_TFC2, UL_TFC3, UL_TFC4 and UL_TFC5 are part of minimum set of TFCIs.~~						
NOTE 2: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs.						

See clause 14.1.1a for test procedure.

14.2.62.4 Test requirements

See 14.1.1 for definition of step 10 and step 15.

1. At step 10 the UE shall send RADIO BEARER SETUP COMPLETE.
2. At step 15 the UE transmitted transport format shall be
   - for sub-test 1: RB5/TF1 (1x40).
   - for sub-test 2: RB5/TF2 (1x54) and RB6/TF1 (1x78)
   - for sub-test 3: RB5/TF3 (1x64) and RB6/TF2 (1x113)
   - for sub-test 4: RB5/TF4 (1x72) and RB6/TF3 (1x181)
3. At step 15 the UE shall return
   - for sub-test 1: an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6.
   - for sub-test 2,3 and 4: an RLC SDU on RB5 and RB6 having the same content as sent by SS.

<End of modified section>

3GPP TSG-T WG1 Meeting #25
Malta, Nov 1st-5th, 2004

Tdoc ⌘T1-041961

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1031** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME [X] Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5; New HSDPA RRC test cases (revision of T1-041589)
Source:	⌘	Ericsson
Work item code:	⌘	HSDPA
Date:	⌘	04/11/2004
Category:	⌘	**B**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	Increase of coverage for RRC HSDPA test cases according to the work plan.

Summary of change:	⌘	The following test cases are added: 8.2.3.31 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (With active HS-DSCH reception) The typical scenario for this test case is when the UE has a PS radio bearer mapped to HS-DSCH simultaneously with a CS speech radio bearer and the CS speech radio bearer is released. 8.2.3.32 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, with active HS-DSCH reception) This is the same as 8.2.3.31 but additionally an inter-frequency handover is performed.
Consequences if not approved:	⌘	Limited test coverage for HSDPA.

Clauses affected:	⌘	8.2.3.31 (new), 8.2.3.32 (new)

	Y	N			
Other specs affected:	⌘		X	Other core specifications	⌘
		X		Test specifications	TS 34.123-2

	X	O&M Specifications

Other comments: ⌘ Affects Rel-5.

How to create CRs using this form:

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.2.3.30.5 Test requirements

After step 1, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.31 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (With active HS-DSCH reception)

8.2.3.31.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.3.31.2 Conformance requirement

If the UE was in CELL_DCH state upon reception of the reconfiguration message and remains in CELL_DCH state, the UE shall:

1> if the IE "Uplink DPCH Info" is absent, not change its current UL Physical channel configuration;

1> if "DPCH frame offset" is included for one or more RLs in the active set:

2> use its value to determine the beginning of the DPCH frame in accordance with the following:

3> if the received IE "DPCH frame offset" is across the value range border compared to the DPCH frame offset currently used by the UE:

4> consider it to be a request to adjust the timing with 256 chips across the frame border (e.g. if the UE receives value 0 while the value currently used is 38144 consider this as a request to adjust the timing with +256 chips).

3> if after taking into account value range borders, the received IE "DPCH frame offset" corresponds to a request to adjust the timing with a step exceeding 256 chips:

4> set the variable INVALID_CONFIGURATION to TRUE.

3> and the procedure ends.

2> adjust the radio link timing accordingly.

Ö

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

Ö

If IE "Timing indication" has the value "initialise", UE shall:

1> execute the Timing Re-initialised hard handover procedure by following the procedure indicated in the subclause relevant to the procedure chosen by the UTRAN.

Ö

If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clause 8.2.2, 8.3.5.1.2, 8.6.3.1

8.2.3.31.3 Test purpose

To confirm that the UE releases a radio bearer according to the received RADIO BEARER RELEASE message while keeping HS-DSCH reception active for a second radio bearer mapped to HS-DSCH.

8.2.3.31.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- UE supports PS+CS

Test Procedure

The has only signalling radio bearers established. A PS radio bearer is established mapped to HS-DSCH with HS-DSCH reception activated. Then, a CS radio bearer is established.

The SS transmits a RADIO BEARER RELEASE message to the UE . This message requests the release of the radio bearer mapped to DCH. After the UE receives this message, it releases this radio bearer but keeps the radio bearer mapped to HS-DSCH and continues HS-DSCH reception. Finally the UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←→			SS establishes a PS RAB mapped to HS-DSCH. See below for contents of the RADIO BEARER SETUP message.
2	←→			SS establishes a CS RAB.
3	←		RADIO BEARER RELEASE	
4	→		RADIO BEARER RELEASE COMPLETE	The UE releases the CS radio bearer mapped to DCH but keeps the PS radio bearer mapped to HS-DSCH and continues HS-DSCH reception
5	←→		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER SETUP (Step 1)

Use the message as defined in TS 34.108 clause 9 for ìPacket to CELL_DCH / HS-DSCH using one multiplexing optionî.

RADIO BEARER RELEASE (Step 3)

Use the same message as specified for ìSpeech in CSî in 34.108 except for the following.

Information Element	Value/remark
Frequency info	Not present
Maximum allowed UL TX power	Not present
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
- Cell ID	Not Present
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	3
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Code number	0
- Scrambling code change	No change
- TPC combination index	0
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not present

8.2.3.31.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.32 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success (Timing re-initialised hard handover to another frequency, with active HS-DSCH reception)

8.2.3.32.1 Definition and applicability

All UEs which support FDD and HS-PDSCH.

8.2.3.32.2 Conformance requirement

In case the procedure was triggered by reception of a RADIO BEARER RELEASE message, the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message on the uplink DCCH using AM RLC.

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If the UE receives a message in which presence is needed for the IE "Activation time", and the value is other than the default value "Now", the UE shall:

1> at the activation time T:

2> for an HS-DSCH related reconfiguration caused by the received message:

3> select the HS-SCCH subframe boundary immediately before the first HS-SCCH subframe, which entirely falls within the 10 ms frame following T;

3> start using, at that HS-SCCH subframe boundary, the new HS-DSCH configuration in the received message, replacing any old HS-DSCH configuration.

2> for actions, other than a physical channel reconfiguration, caused by the received message:

3> perform the actions for the information elements in the received message as specified elsewhere.

NOTE: An "HS-DSCH related reconfiguration" includes, in particular, reconfigurations that need to be time-aligned with the 2ms subframe of the HS-SCCH, HS-PDSCH and/or HS-DPCCH. For example, start and stop of HS-SCCH reception and serving HS-DSCH cell change.

Reference

3GPP TS 25.331 clause 8.2.2, 8.6.3.1

8.2.3.32.3 Test purpose

To confirm that the UE releases a radio bearer according to the received RADIO BEARER RELEASE message while keeping HS-DSCH reception active for a second radio bearer mapped to HS-DSCH.

8.2.3.32.4 Method of test

Initial Condition

System Simulator: 2 cellsñCells 1 and 6 are active.

UE: PS-DCCH DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Related ICS/IXIT statement(s)

- UE supports FDD
- UE supports HS-PDSCH
- UE supports PS+CS

Test Procedure

The UE is in cell 1 with only signalling radio bearers established. A PS radio bearer is established mapped to HS-DSCH with HS-DSCH reception activated. Then, a CS radio bearer is established.

The SS transmits a RADIO BEARER RELEASE message to the UE . This message requests the release of the CS radio bearer mapped to DCH as well as a timing re-initialised interfrequency hard handover to cell 6. After the UE receives this message, it releases this radio bearer but keeps the radio bearer mapped to HS-DSCH and continues HS-DSCH reception. Finally the UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC in cell 6.

SS calls for generic procedure C.3 to check that UE is in CELL_DCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	← →			SS establishes a PS RAB mapped to HS-DSCH.
2	← →			SS establishes a CS RAB.
3	←		RADIO BEARER RELEASE	
4	→		RADIO BEARER RELEASE COMPLETE	The UE releases the CS radio bearer mapped to DCH but keeps the PS radio bearer mapped to HS-DSCH and continues HS-DSCH reception
5	← →		CALL C.3	If the test result of C.3 indicates that UE is in CELL_DCH state, the test passes, otherwise it fails.

Specific Message Contents

RADIO BEARER RELEASE (Step 3)

Use the same message as specified for ì Speech in CSî in 34.108 except for the following.

Information Element	Value/remark
New H-RNTI	'0101 0101 0101 0101'
Frequency info	
- UARFCN uplink(Nu)	Same uplink UARFCN as used for cell 6
- UARFCN downlink(Nd)	Same downlink UARFCN as used for cell 6
Maximum allowed UL TX power	Not present
CHOICE channel requirement	Uplink DPCH info
- Uplink DPCH power control info	
- DPCCH power offset	-80dB (i.e. ASN.1 IE value of ñ40)
- PC Preamble	1 frame
- SRB delay	7 frames
- Power Control Algorithm	Algorithm1
- TPC step size	1dB
- Δ_{ACK}	6
- Δ_{NACK}	6
- Ack-Nack repetition factor	2
- Scrambling code type	Long
- Scrambling code number	0 (0 to 16777215)
- Number of DPDCH	Not Present(1)
- spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- Number of FBI bit	Reference to TS34.108 clause 6.10 Parameter Set
- Puncturing Limit	Reference to TS34.108 clause 6.10 Parameter Set
Downlink HS-PDSCH Information	
- HS-SCCH Info	
- CHOICE mode	FDD
- DL Scrambling Code	
- HS-SCCH Channelisation Code Information	
- HS-SCCH Channelisation Code	2
- Measurement Feedback Info	
- CHOICE mode	FDD
- Measurement Power Offset	6 dB
- CQI Feedback cycle, k	4 ms
- CQI repetition factor	1
- Δ_{CQI}	5 (corresponds to 0dB in relative power offset)
- CHOICE mode	FDD (no data)
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing indication	Initialise
- CFN-targetSFN frame offset	0
- Downlink DPCH power control information	Not Present
- Downlink rate matching restriction information	Not Present
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set
- Fixed or flexible position	Reference to TS34.108 clause 6.10 Parameter Set
- TFCI existence	Reference to TS34.108 clause 6.10 Parameter Set
- CHOICE SF	Reference to TS34.108 clause 6.10 Parameter Set
- DPCH compressed mode info	Not present
- TX Diversity mode	Not Present
- SSDT information	Not Present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
- MAC-hs reset indicator	TRUE
Downlink information for each radio link list	
- Downlink information for each radio link	
- Choice mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the scrambling code for cell 6
- Cell ID	Not Present
- PDSCH with SHO DCH info	Not Present
- PDSCH code mapping	Not Present
- Serving HS-DSCH radio link indicator	TRUE
- Downlink DPCH info for each RL	
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	Set to value Default DPCH Offset Value (as currently stored in SS) mod 38400
- Secondary CPICH info	Not Present
- DL channelisation code	
- Secondary scrambling code	3
- Spreading factor	Reference to TS34.108 clause 6.10 Parameter Set

- Code number	0
- Scrambling code change	No change
- TPC combination index	0
- SSDT Cell Identity	Not Present
- Closed loop timing adjustment mode	Not Present
- SCCPCH information for FACH	Not present

8.2.3.32.5 Test requirements

After step 2, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message using AM RLC in cell 6.

8.2.4 Transport channel reconfiguration

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041962

CR-Form-v7

CHANGE REQUEST

⌘ **34-.123-1** **CR** 1032 ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	New MAC-hs test case for transport format selection
Source:	⌘	Ericsson, NTT DoCoMo, Qualcomm
Work item code:	⌘	HSDPA
Date:	⌘	4/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Lack of test coverage for MAC-hs transport format selection
Summary of change:	⌘	New MAC-hs test case added: 7.1.5.6 MAC-hs transport block size selection
Consequences if not approved:	⌘	Lack of test coverage for MAC-hs transport fromat selection remains.

Clauses affected:	⌘	7.1.5.6			
Other specs affected:	⌘	Y / N	Other core specifications	⌘	34.123-2 (T1-041595)
		N / X	Other core specifications		
		X /	Test specifications		
		/ X	O&M Specifications		
Other comments:	⌘				

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

7.1.5.6 MAC-hs transport block size selection

7.1.5.6.1 Definition and applicability

All UEs which support HS-PDSCH.

7.1.5.6.2 Conformance requirement

For HS-DSCH the transport block size is derived from the value signalled on the HS-SCCH. The mapping between the TFRI value and the transport block size for each mode is specified below:

For all transmissions of a transport block, the transport block size is derived from the TFRI value as specified below, except only in those cases of retransmissions where the Node-B selects a combination for which no mapping exists between the original transport block size and the selected combination of channelisation Code set and modulation type. In such cases, the transport block size index value signalled to the UE shall be set to 111111, i.e., k_i=63.

Let k_i be the TFRI signalled on the HS-SCCH value and let $k_{0,i}$ be the value in the table 7.1.5.6.1 corresponding to the modulation and the number of codes signalled on the HS-SCCH. Let k_t be the sum of the two values: $k_t = k_i + k_{0,i}$. The transport block size $L(k_t)$ can be obtained by accessing the position k_t in the table in Annex A (normative) or by using the formula below (informative):

If $k_t < 40$

$$L(k_t) = 125 + 12 \cdot k_t$$

else

$$L(k_t) = \lfloor L_{\min} p^{k_t} \rfloor$$

$$p = 2085/2048$$

$$L_{\min} = 296$$

end

Table 7.1.5.6.1: Values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes

Combination *i*	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	40
2		3	63
3		4	79
4		5	92
5		6	102
6		7	111
7		8	118
8		9	125
9		10	131
10		11	136
11		12	141
12		13	145
13		14	150
14		15	153
15	16QAM	1	40
16		2	79
17		3	102

18		4	118
19		5	131
20		6	141
21		7	150
22		8	157
23		9	164
24		10	169
25		11	175
26		12	180
27		13	184
28		14	188
29		15	192

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The following table provides the mapping between k_t (as per the definition above) and the HS-DSCH Transport Block Size (L(k_t)):

Index	TB Size	Index	TB Size	Index	TB Size
1	137	86	1380	171	6324
2	149	87	1405	172	6438
3	161	88	1430	173	6554
4	173	89	1456	174	6673
5	185	90	1483	175	6793
6	197	91	1509	176	6916
7	209	92	1537	177	7041
8	221	93	1564	178	7168
9	233	94	1593	179	7298
10	245	95	1621	180	7430
11	257	96	1651	181	7564
12	269	97	1681	182	7700
13	281	98	1711	183	7840
14	293	99	1742	184	7981
15	305	100	1773	185	8125
16	317	101	1805	186	8272
17	329	102	1838	187	8422
18	341	103	1871	188	8574
19	353	104	1905	189	8729
20	365	105	1939	190	8886
21	377	106	1974	191	9047
22	389	107	2010	192	9210
23	401	108	2046	193	9377
24	413	109	2083	194	9546
25	425	110	2121	195	9719
26	437	111	2159	196	9894
27	449	112	2198	197	10073
28	461	113	2238	198	10255
29	473	114	2279	199	10440
30	485	115	2320	200	10629
31	497	116	2362	201	10821
32	509	117	2404	202	11017
33	521	118	2448	203	11216
34	533	119	2492	204	11418
35	545	120	2537	205	11625
36	557	121	2583	206	11835

37	569	122	2630	207	12048
38	581	123	2677	208	12266
39	593	124	2726	209	12488
40	605	125	2775	210	12713
41	616	126	2825	211	12943
42	627	127	2876	212	13177
43	639	128	2928	213	13415
44	650	129	2981	214	13657
45	662	130	3035	215	13904
46	674	131	3090	216	14155
47	686	132	3145	217	14411
48	699	133	3202	218	14671
49	711	134	3260	219	14936
50	724	135	3319	220	15206
51	737	136	3379	221	15481
52	751	137	3440	222	15761
53	764	138	3502	223	16045
54	778	139	3565	224	16335
55	792	140	3630	225	16630
56	806	141	3695	226	16931
57	821	142	3762	227	17237
58	836	143	3830	228	17548
59	851	144	3899	229	17865
60	866	145	3970	230	18188
61	882	146	4042	231	18517
62	898	147	4115	232	18851
63	914	148	4189	233	19192
64	931	149	4265	234	19538
65	947	150	4342	235	19891
66	964	151	4420	236	20251
67	982	152	4500	237	20617
68	1000	153	4581	238	20989
69	1018	154	4664	239	21368
70	1036	155	4748	240	21754
71	1055	156	4834	241	22147
72	1074	157	4921	242	22548
73	1093	158	5010	243	22955
74	1113	159	5101	244	23370
75	1133	160	5193	245	23792
76	1154	161	5287	246	24222
77	1175	162	5382	247	24659
78	1196	163	5480	248	25105
79	1217	164	5579	249	25558
80	1239	165	5680	250	26020
81	1262	166	5782	251	26490
82	1285	167	5887	252	26969
83	1308	168	5993	253	27456
84	1331	169	6101	254	27952
85	1356	170	6211		

Reference(s)

3GPP TS 25.321, 9.2.3, 9.2.3.1 and Annex A

7.1.5.6.3 Test purpose

To verify that the UE selects the correct transport block size based on the TFRI value signalled on the HS-SCCH.

7.1.5.6.4 Method of test

Definition of test variables:

N_{codes}	Number of HS-DSCH codes (1..15, maximum number dependent on UE category)
M	Type of modulation scheme (QPSK, 16QAM)
k_i	TFRI signalled on the HS-SCCH value
$K_{0,I}$	See table 7.1.5.6.2
k_t	Transport Block Size index ($=k_i + k_{0,I}$), see table 7.1.5.6.3
TB_{size}	Transport Block size
N_{PDUs}	Number of MAC-d PDUs
MAC-hs_header_size	MAC-hs header size for the reference HS-DSCH radio bearer configuration under test.
MAC-d_PDU_size	MAC-d PDU size for the reference HS-DSCH radio bearer configuration under test.

Table 7.1.5.6.2: Values of $k_{0,i}$ for different numbers of channelization codes and modulation schemes

Combination *I*	Modulation scheme	Number of channelization codes	$k_{0,i}$
0	QPSK	1	1
1		2	40
2		3	63
3		4	79
4		5	92
5		6	102
6		7	111
7		8	118
8		9	125
9		10	131
10		11	136
11		12	141
12		13	145
13		14	150
14		15	153
15	16QAM	1	40
16		2	79
17		3	102
18		4	118
19		5	131
20		6	141
21		7	150
22		8	157
23		9	164
24		10	169
25		11	175

26		12	180
27		13	184
28		14	188
29		15	192

Table 7.1.5.6.3: Mapping of HS-DSCH Transport Block Size for FDD to value of index k_t (=k_i + $k_{0,i}$)

Index	TB Size	Index	TB Size	Index	TB Size
1	137	86	1380	171	6324
2	149	87	1405	172	6438
3	161	88	1430	173	6554
4	173	89	1456	174	6673
5	185	90	1483	175	6793
6	197	91	1509	176	6916
7	209	92	1537	177	7041
8	221	93	1564	178	7168
9	233	94	1593	179	7298
10	245	95	1621	180	7430
11	257	96	1651	181	7564
12	269	97	1681	182	7700
13	281	98	1711	183	7840
14	293	99	1742	184	7981
15	305	100	1773	185	8125
16	317	101	1805	186	8272
17	329	102	1838	187	8422
18	341	103	1871	188	8574
19	353	104	1905	189	8729
20	365	105	1939	190	8886
21	377	106	1974	191	9047
22	389	107	2010	192	9210
23	401	108	2046	193	9377
24	413	109	2083	194	9546
25	425	110	2121	195	9719
26	437	111	2159	196	9894
27	449	112	2198	197	10073
28	461	113	2238	198	10255
29	473	114	2279	199	10440
30	485	115	2320	200	10629
31	497	116	2362	201	10821
32	509	117	2404	202	11017
33	521	118	2448	203	11216
34	533	119	2492	204	11418
35	545	120	2537	205	11625
36	557	121	2583	206	11835
37	569	122	2630	207	12048
38	581	123	2677	208	12266
39	593	124	2726	209	12488
40	605	125	2775	210	12713
41	616	126	2825	211	12943
42	627	127	2876	212	13177
43	639	128	2928	213	13415
44	650	129	2981	214	13657
45	662	130	3035	215	13904

46	674	131	3090	216	14155
47	686	132	3145	217	14411
48	699	133	3202	218	14671
49	711	134	3260	219	14936
50	724	135	3319	220	15206
51	737	136	3379	221	15481
52	751	137	3440	222	15761
53	764	138	3502	223	16045
54	778	139	3565	224	16335
55	792	140	3630	225	16630
56	806	141	3695	226	16931
57	821	142	3762	227	17237
58	836	143	3830	228	17548
59	851	144	3899	229	17865
60	866	145	3970	230	18188
61	882	146	4042	231	18517
62	898	147	4115	232	18851
63	914	148	4189	233	19192
64	931	149	4265	234	19538
65	947	150	4342	235	19891
66	964	151	4420	236	20251
67	982	152	4500	237	20617
68	1000	153	4581	238	20989
69	1018	154	4664	239	21368
70	1036	155	4748	240	21754
71	1055	156	4834	241	22147
72	1074	157	4921	242	22548
73	1093	158	5010	243	22955
74	1113	159	5101	244	23370
75	1133	160	5193	245	23792
76	1154	161	5287	246	24222
77	1175	162	5382	247	24659
78	1196	163	5480	248	25105
79	1217	164	5579	249	25558
80	1239	165	5680	250	26020
81	1262	166	5782	251	26490
82	1285	167	5887	252	26969
83	1308	168	5993	253	27456
84	1331	169	6101	254	27952
85	1356	170	6211		

Initial conditions

System Simulator:

1 cell, default parameters, Ciphering Off

User Equipment:

UE in idle mode

The following parameters are specific for this test case:

Common for all UE categories:

Parameter	Value
MAC-d PDU size	336 bits
MAC-hs receiver window size	16
Number of HARQ processes	1
Number of reordering queues	1

UE Category 1 to 4:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	512

UE Category 5 and 6:

Parameter	Value
RLC Transmission window size	256
RLC Receiving window size	512

UE Category 7 and 8:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	1536

UE Category 9 and 10:

Parameter	Value
RLC Transmission window size	512
RLC Receiving window size	2047

UE Category 11 and 12:

Parameter	Value
RLC Transmission window size	128
RLC Receiving window size	1024

14.1.3.2.2 Test procedure

a) The SS establishes the reference radio bearer configuration ì Interactive or background / UL:64 DL: [max bit rate depending on UE category] / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCHî as specified in TS 34.108, clause 6.10.2.4.5.1. See note 1.

b) The SS closes the test loop using UE test loop mode 1 setting the UL RLC SDU size parameter to 39 octets (312 bits).

c) The SS sets *M*= QPSK.

d) The SS sets N_{codes} = 1.

e) The SS sets $k_{0,i}$ to the value according to table 14.1.3.2.1 based on the actual value of *M* and N_{codes}.

f) The SS sets the test parameter k_i to 0.

g) The SS calculates the index value k_I (=k_i + $k_{0,I}$) and lockup the transport block size, TB_{size}, for the actual k_I in table 7.1.5.6.3

If TB_{size} is bigger than the UE capability for ì Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTIî then SS continues with step d) else step h). See note 2.

h) The SS calculates the maximum number of MAC-d PDUs that fits into the MAC-hs transport block:

N_{PDUs} = floor((TB_{size} ñ *MAC-hs_header_size)* / *MAC-d_PDU_size)*

If N_{PDUs} is bigger than 70 then SS continues with step d) else i).

i) The SS creates a MAC-hs PDU of size TB_{size} containing N_{PDUs} MAC-d PDUs + padding. The payload data of the MAC-d PDUs contains a RLC SDU of size N_{PDUs} * MAC-d PDU payload size minus 8 bits (size of 7 bit length indicator and expansion bit).

j) The SS transmits the MAC-hs PDU.

k) The SS checks that the UE returned RLC SDU has the same content as the first 312 bits of the test data sent by the SS in downlink.

l) The SS increments the test parameter k_j by 1. If k_j is less than 63 then SS repeats steps g) to l).

m) The SS increments the test parameter *N_Code by 1*. If *N_code* is less or equal to the UE capability for *ì Maximum number of HS-DSCH codes receivedî* then the SS repeats test steps e) to m) else continue with step n). See note 2.

n) If *Modulation* = QPSK and UE capability for *ì Supported modulationî* is 16QAM then the SS sets the test parameter *Modulation* to 16QAM and repeats steps d) to n) else continue with step o). See note 2.

o) The SS opens the UE test loop.

p) The SS release the radio bearer.

q) The SS may optionally deactivate the radio bearer test mode.

NOTE 1: The SS configures the physical channel parameters according to the actual UE category under test.

NOTE 2: See table Table 14.1.3.1.1 in section 14.1.3.1 for FDD HS-DSCH physical layer and RLC and MAC-hs capability parameters and there values for different UE FDD HS-DSCH physical layer categories (UE categories). The capability parameters having impact on the test procedure are: ì Maximum number of bits of an HS-DSCH transport block received within an HS-DSCH TTIî , *ì Maximum number of HS-DSCH codes receivedî and ì Supported modulationî*

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	<--		SYSTEM INFORMATION (BCCH)	Broadcast
2	<--		PAGING TYPE 1 (PCCH)	Paging (PS domain, P-TMSI)
3	-->		RRC CONNECTION REQUEST (CCCH)	RRC
4	<--		RRC CONNECTION SETUP (CCCH)	RRC
5	-->		RRC CONNECTION SETUP COMPLETE (DCCH)	RRC
6	-->		SERVICE REQUEST (DCCH)	GMM
7	<--		SECURITY MODE COMMAND	RRC see note 1
8	-->		SECURITY MODE COMPLETE	RRC see note 1
9	<--		ACTIVATE RB TEST MODE (DCCH)	TC
10	-->		ACTIVATE RB TEST MODE COMPLETE (DCCH)	TC
11	<--		RADIO BEARER SETUP (DCCH)	RRC. For the PS radio bearer the ëpdcp infoí IE shall be omitted.
12	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
13	<--		CLOSE UE TEST LOOP (DCCH)	TC UE test mode 1 RLC SDU size is set to 39 octets
14	-->		CLOSE UE TEST LOOP COMPLETE (DCCH)	TC
15	SS			The SS calculates test data for the first TFRC (TFRI,N_{codes} and *M*).
16	<--		DOWNLINK MAC-hs PDU	Send test data
17	-->		UPLINK RLC SDU	The SS checks that the content of the received UL RLC SDU is correct
18	SS			The SS calculates test data for next TFRC and repeat steps 16 to 18 until all TFRCs have been tested.
19	<--		OPEN UE TEST LOOP (DCCH)	TC
20	-->		OPEN UE TEST LOOP COMPLETE (DCCH)	TC
21			RB RELEASE	RRC
22	<--		DEACTIVATE RB TEST MODE	TC Optional step
23	-->		DEACTIVATE RB TEST MODE COMPLETE	TC Optional step
Note 1 In addition to activate integrity protection Step 6 and Step 7 are inserted in order to stop T3317 timer in the UE, which starts after transmitting SERVICE REQUEST message.				

7.1.5.6.5 Test requirements

For each TFRC the UE shall return a UL RLC SDUs with the same content as the first 312 bits of the test data sent by the SS in downlink.

3GPP TSG-T1 Meeting #25
St Paulís Bay, Malta, 1st - 5th November 2004

Tdoc ⌘ T1-041966

CR-Form-v7.1

CHANGE REQUEST

⌘ **34.123-1** **CR** **1033** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☐

Title:	⌘	Removal of optional ëFollow-on request pendingí indicator in SM test case 11.1.1.1.
Source:	⌘	NEC Corporation
Work item code:	⌘	TEI
Date:	⌘	04/10/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	In Step 4 comment ìRequest attach with Follow-on request pendingî implies use of Follow-on flag which is not mandatory for UE according to 24.008, clause 4.7.3.1.1 and 4.7.3.2.1 which states following: ìIn UMTS, if the MS wishes to prolong the established PS signalling connection after the GPRS attach, it may set a follow-on request pending indicator on.î
Summary of change:	⌘	1. In Step 4 comment ìRequest attach with Follow-on request pendingî replaced with ìThe UE requests attachî, and removed ciphering in Step 4a. 2. Added clarification for UE and SS behaviour in Steps 6-10.
Consequences if not approved:	⌘	Correctly implemented UE which does not support optional ëFollow-on request pending indicatorí will fail the test.

Clauses affected:	⌘	11.1.1.1.4, 11.1.1.1.5			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
		X		Test specifications	34.123-3
			X	O&M Specifications	
Other comments:	⌘	Applicable for all previous releases.			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

11.1.1.1 Attach initiated by context activation/QoS Offered by Network is the QoS Requested

11.1.1.1.1 Definition

11.1.1.1.2 Conformance requirement

SM procedures for identified access can only be performed if a GMM context has been established between the UE and the network. If no GMM context has been established, the MM sublayer has to initiate the establishment of a GMM context by use of the GMM procedures as described in chapter 4, 3GPP TS 24.008. After GMM context establishment, SM uses services offered by GMM (see 3GPP TS 24.007). Ongoing SM procedures are suspended during GMM procedure execution.

In UMTS only, integrity protected signalling (see 3GPP TS 24.008 clause 4.1.1.1.1) and in general, see 3GPP TS 33.102) is mandatory. In UMTS only, all protocols shall use integrity protected signalling. Integrity protection of all SM signalling messages is the responsibility of lower layers. It is the network which activates integrity protection. This is done using the security mode control procedure (TS 25.331).

In order to request a PDP context activation, the UE sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the UE requests a static address, the PDP address.

Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the UE shall stop timer T3380, shall enter the state PDP-ACTIVE.

If the QoS offered by the network is the same as the QoS requested by the UE, the UE shall accept the negotiated QoS.

In UMTS, both the network and the UE shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM system change is performed, the new SGSN shall initiate establishment of the logical link using the negotiated QoS profile, the negotiated LLC SAPI, and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.

A UE, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while a UE which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network.

NOTE 1: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

Reference

3GPP TS 24.008 clauses 6.1.1 and 6.1.3.1.1.

11.1.1.1.3 Test purpose

To check that the UE initiates a PS attach, if one is not already active, when PDP context activation is requested.

To test the behaviour of the UE when SS responds to the PDP context activation request with the requested QoS.

11.1.1.1.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Auto Attach supported yes / no
- Method of context activation

Test procedure

The UE is attached, then the Detach Request is originated from the UE indicating "GPRS detach without switching off". The SS responds with a Detach Accept after completing the security mode procedures. A PDP context activation is then requested by the user. The PS attach (ATTACH REQUEST) is then indirectly caused by a requested PDP context activation. The SS returns the ATTACH ACCEPT message to the UE. Now session management can proceed with PDP context activation.

On receipt of the ACTIVATE PDP CONTEXT REQUEST message an ACTIVATE PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The contents of the ACTIVATE PDP CONTEXT REQUEST message shall then be checked. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE PDP CONTEXT REQUEST messages are sent by the UE. The SS then sends a MODIFY PDP CONTEXT REQUEST message to which the UE shall reply with a MODIFY PDP CONTEXT ACCEPT message to ensure the context has been set up.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
0a	UE			Detach is performed by the UE using MMI or AT Commands
0		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
1	→		DETACH REQUEST	
1a		SS		The SS starts integrity protection.
2	←		DETACH ACCEPT	SS sends Detach Accept message.
2a		SS		The SS releases the RRC connection.
3	UE			Initiate a context activation
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	→		ATTACH REQUEST	The UE Requests attach ~~with Follow-on request pending~~
4a		SS		The SS starts ~~ciphering and~~ integrity protection.
5	←		ATTACH ACCEPT	The SS Accepts attach Negotiated Ready timer value IE should not be included Force to standby IE set to ìForce to standby not indicatedî
6	→		ACTIVATE PDP CONTEXT REQUEST	The UE Requests a PDP context activation (with static PDP address), enters the state PDP-ACTIVE-PENDING and starts timer T3380
6a		SS		The SS establishes the RAB.
7	←		ACTIVATE PDP CONTEXT ACCEPT	The SS Accepts the PDP context activation and starts T3380
7a	UE			The UE stops T3380 and enters the state PDP-ACTIVE
8		SS		The SS ~~W~~waits for T3380 ~~seconds~~expiry to ensure no further activate request messages come from the UE
9	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE for the activated context
10	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS. This re-confirms that step 6 was correctly executed in the UE.~~to show context is activated~~
11		SS		The SS releases the RRC connection due to inactivity (no user data transferred)

Specific message contents

None.

11.1.1.1.5 Test requirements

At step 0 the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach".

At step 3a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration".

When requesting a PDP context activation, the UE shall:

- initiate ~~a~~ PS ATTACH ~~if one is not already active~~;

- when the SS responds to a PDP context activation request, initiated by the UE, with the requested QoS, the UE shall complete the PDP context activation procedure. To check if the PDP context activation was successful, SS shall request PDP context modification and UE shall accept it.

<END OF MODIFIED SECTION>

3GPP TSG-T1 Meeting #25
St Paulís Bay, Malta, 1st - 5th November 2004

Tdoc ⌘ T1-041967

CR-Form-v7.1

CHANGE REQUEST

⌘	**34.123-1**	**CR**	**1034**	⌘ **rev**	**-**	⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [ ] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Removal of optional ëFollow-on request pendingí indicator in SM test case 11.1.1.1a.	
Source:	⌘	NEC Corporation	
Work item code:	⌘	TEI	***Date:*** ⌘ 04/10/2004
Category:	⌘	**F**	***Release:*** ⌘ Rel-5
		Use <u>one</u> of the following categories: ***F*** *(correction)* ***A*** *(corresponds to a correction in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)* Detailed explanations of the above categories can be found in 3GPP TR 21.900.	*Use <u>one</u> of the following releases:* *Ph2 (GSM Phase 2)* *R96 (Release 1996)* *R97 (Release 1997)* *R98 (Release 1998)* *R99 (Release 1999)* *Rel-4 (Release 4)* *Rel-5 (Release 5)* *Rel-6 (Release 6)* *Rel-7 (Release 7)*

Reason for change:	⌘	In Step 4 comment ìRequest attach with Follow-on request pendingî implies use of Follow-on flag which is not mandatory for UE according to 24.008, clause 4.7.3.1.1 and 4.7.3.2.1 which states following: ìIn UMTS, if the MS wishes to prolong the established PS signalling connection after the GPRS attach, it may set a follow-on request pending indicator on.î
Summary of change:	⌘	*1.* In Step 4 comment ìRequest attach with Follow-on request pendingî replaced with ìThe UE requests attachî, removed ciphering in Step 4a. 2. Added clarification for UE and SS behaviour in Steps 6-10.
Consequences if not approved:	⌘	Correctly implemented UE which does not support optional ëFollow-on request pending indicatorí will fail the test.

Clauses affected:	⌘	11.1.1.1a.4, 11.1.1.1a.5				
		Y	**N**			
Other specs affected:	⌘		**X**	Other core specifications	⌘	
		X		Test specifications		34.123-3
			X	O&M Specifications		
Other comments:	⌘	Applicable for all previous releases.				

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<START OF MODIFIED SECTION>

11.1.1.1a Attach initiated by context activation/QoS Offered by Network is the QoS Requested/Correct handling of QoS extensions for rates above 8640 kbps

11.1.1.1a.1 Definition and applicability

UEs which support HS-PDSCH and supporting rates above 8640 kbps (UE Category 7 and UE Category 10).

11.1.1.1a.2 Conformance requirement

1. SM procedures for identified access can only be performed if a GMM context has been established between the UE and the network. If no GMM context has been established, the MM sublayer has to initiate the establishment of a GMM context by use of the GMM procedures as described in chapter 4. After GMM context establishment, SM uses services offered by GMM (see 3GPP TS 24.007). Ongoing SM procedures are suspended during GMM procedure execution.

   In UMTS only, integrity protected signalling (see 3GPP TS 24.008 clause 4.1.1.1.1) and in general, see 3GPP TS 33.102) is mandatory. In UMTS only, all protocols shall use integrity protected signalling. Integrity protection of all SM signalling messages is the responsibility of lower layers. It is the network which activates integrity protection. This is done using the security mode control procedure (TS 25.331).

2. In order to request a PDP context activation, the UE sends an ACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-ACTIVE-PENDING and starts timer T3380. The message contains the selected NSAPI, PDP type, requested QoS and, if the UE requests a static address, the PDP address. The UE shall ensure that the selected NSAPI is not currently being used by another Session Management entity in the MS.

   Upon receipt of an ACTIVATE PDP CONTEXT REQUEST message, the network selects a radio priority level based on the QoS negotiated and may reply with an ACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the UE shall stop timer T3380, shall enter the state PDP-ACTIVE. If the offered QoS parameters received from the network differ from the QoS requested by the MS, the MS shall either accept the negotiated QoS or initiate the PDP context deactivation procedure.

   Ö Ö

   In UMTS, both the network and the UE shall store the LLC SAPI and the radio priority in the PDP context. If a UMTS to GSM system change is performed, the new SGSN shall initiate establishment of the logical link using the negotiated QoS profile, the negotiated LLC SAPI, and selected radio priority level stored in the PDP context as in a GSM to GSM Routing Area Update.

   A UE, which is capable of operating in both GSM and UMTS, shall use a valid LLC SAPI, while a UE which is capable of operating only in UMTS shall indicate the LLC SAPI value as "LLC SAPI not assigned" in order to avoid unnecessary value range checking and any other possible confusion in the network.

NOTE 1: The radio priority level and the LLC SAPI parameters, though not used in UMTS, shall be included in the messages, in order to support handover between UMTS and GSM networks.

3. The *quality of service* is a type 4 information element with a minimum length of 14 octets and a maximum length of 16 octets. The QoS requested by the MS shall be encoded both in the QoS attributes specified in octets 3-5 and in the QoS attributes specified in octets 6-14.

   In the UE to network direction and in the network to UE direction the following applies:

   - Octets 15 and 16 are optional. If octet 15 is included, then octet 16 shall also be included.

   - A QoS IE received without octets 6-16, without octets 14-16, or without octets 15-16 shall be accepted by the receiving entity.

NOTE: This behavior is required for interworking with entities supporting an earlier version of the protocol, or when the Maximum bit rate for downlink is negotiated to a value lower than 8700 kbps.

Ö Ö .

8	7	6	5	4	3	2	1	
Quality of service IEI								octet 1
Length of quality of service IE								Octet 2
0 0 spare			Delay class			Reliability class		octet 3
Peak throughput				0 spare		Precedence class		octet 4
0 0 0 spare			Mean throughput					octet 5
Traffic Class			Delivery order			Delivery of erroneous SDU		Octet 6
Maximum SDU size								Octet 7
Maximum bit rate for uplink								Octet 8
Maximum bit rate for downlink								Octet 9
Residual BER				SDU error ratio				Octet 10
Transfer delay						Traffic Handling priority		Octet 11
Guaranteed bit rate for uplink								Octet 12
Guaranteed bit rate for downlink								Octet 13
0 0 0 spare			Signal-ling Indicat-ion	Source Statistics Descriptor				Octet 14
Maximum bit rate for downlink (extended)								Octet 15
Guaranteed bit rate for downlink (extended)								Octet 16

Ö ..

Maximum bit rate for downlink, octet 9 (see 3GPP TS 23.107)

Coding is identical to that of Maximum bit rate for uplink.

If the sending entity wants to indicate a Maximum bit rate for downlink higher than 8640 kbps, it shall set octet 9 to î11111110î, i.e. 8640 kbps, and shall encode the value for the Maximum bit rate in octet 15.

Ö ..

Maximum bit rate for downlink (extended), octet 15
Bits
8 7 6 5 4 3 2 1
In MS to network direction and in network to MS direction:
0 0 0 0 0 0 0 0 Use the value indicated by the Maximum bit rate for downlink in octet 9.

0 0 0 0 0 0 0 1 Ignore the value indicated by the Maximum bit rate for downlink in octet 9. The maximum bit rate is
0 1 0 0 1 0 1 0 8600 kbps + ((the binary coded value in 8 bits) * 100 kbps), giving a range of values from 8700 kbps to 16000 kbps in 100 kbps increments.

Reference

3GPP TS 24.008 clauses 6.1.1, 6.1.3.1.1 and 10.5.6.5.

11.1.1.1a.3 Test purpose

To check that the UE initiates a PS attach, if one is not already active, when PDP context activation is requested.

To check that the UE performs correct handling of QoS extensions for rates above 8640 kbps.

To check the UE successfully completes the PDP context activation when the SS responds to the PDP context activation request with the requested QoS.

11.1.1.1a.4 Method of test

Initial conditions

System Simulator:

1 cell, default parameters.

User Equipment:

The UE is in GMM-state "GMM-REGISTERED, normal service" with valid P-TMSI and CKSN.

Related ICS/IXIT statements

- PS Supported yes/no
- Auto Attach supported yes / no
- Method of context activation
- Supported downlink rates above 8640 kbps yes/no

Test procedure

Table 11.1.1.1a.1 Test execution test parameters

Execution	Maximum bit rate for downlink
1	Value supported by the UE which is less than 8640 kbps
2	Value supported by the UE which is bigger than 8640 kbps

The UE is attached, then the Detach Request is originated from the UE indicating "GPRS detach without switching off". The SS responds with a Detach Accept after completing the security mode procedures. A PDP context activation is then requested. The IE ìMaximum bit rate for downlinkî is selected according to Table 11.1.1.1a.1 for execution=1. The PS attach (ATTACH REQUEST) is then indirectly caused by ~~a~~ the requested PDP context activation. The SS returns the ATTACH ACCEPT message to the UE. Now session management can proceed with PDP context activation.

On receipt of the ACTIVATE PDP CONTEXT REQUEST message an ACTIVATE PDP CONTEXT ACCEPT is returned by the SS with the same requested QoS. The contents of the ACTIVATE PDP CONTEXT REQUEST message shall then be checked. The SS then waits for T3380 seconds to ensure T3380 has been stopped and no more ACTIVATE PDP CONTEXT REQUEST messages are sent by the UE. The SS then sends a MODIFY PDP CONTEXT REQUEST message to which the UE shall reply with a MODIFY PDP CONTEXT ACCEPT message to ensure the context has been set up.

The test case is repeated with test parameters according to Table 11.1.1.1a.1 for execution=2.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
0a	UE			Detach is performed by the UE using MMI or AT Commands
0		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
1	→		DETACH REQUEST	
1a		SS		The SS starts integrity protection.
2	←		DETACH ACCEPT	The SS sends Detach Accept message.
2a		SS		The SS releases the RRC connection.
3	UE			The UE ~~i~~initiates a context activation with a requested ìMaximum bit rate for downlinkî according to Table 11.1.1.1a.1
3a		SS		The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	→		ATTACH REQUEST	The UE ~~R~~requests attach ~~with Follow-on request pending~~
4a		SS		The SS starts ~~ciphering and~~ integrity protection.
5	←		ATTACH ACCEPT	The SS ~~A~~accepts attach Negotiated Ready timer value IE should not be included Force to standby IE set to ìForce to standby not indicatedî
6	→		ACTIVATE PDP CONTEXT REQUEST	The UE ~~R~~requests a PDP context activation (with static PDP address), enters the state PDP-ACTIVE-PENDING and starts timer T3380
6a		SS		The SS establishes the RAB.
7	←		ACTIVATE PDP CONTEXT ACCEPT	The SS ~~A~~accepts the PDP context activation and starts T3380
7a	UE			The UE stops T3380 and enters the state PDP-ACTIVE
8		SS		The SS ~~W~~waits for T3380 seconds to ensure no further activate request messages come from the UE
9	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	The SS sends a modify request to UE for the activated context
10	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	The UE accepts the modification request from the SS. ~~to show context is activated~~This re-confirms that step 6 was correctly executed in the UE.
11		SS		The SS releases the RRC connection due to inactivity (no user data transferred)

The test sequence is repeated according to Table 11.1.1.1a.1.

Specific message contents

None.

11.1.1.1a.5 Test requirements

At step 0 the UE shall send ~~an~~ RRC CONNECTION REQUEST message with the IE Establishment cause set to "Detach";

At step 3a the UE shall send ~~an~~ RRC CONNECTION REQUEST message with the IE Establishment cause set to "Registration";

At step 4 the UE shall initiate ~~a~~ PS ATTACH ~~if not already active~~;

At step 6 the UE shall send ~~an~~ ACTIVE PDP CONTEXT REQUEST message with the IE Requested QoS and Maximum bit rate for downlink set to value according to Table 11.1.1.1a.1;

At step 10 the UE shall send a MODIFY PDP CONTEXT ACCEPT message.

<END OF MODIFIED SECTION>

3GPP TSG-T1 Meeting #25
St.Paulís Bay, Malta, 1st-5th November 2004

Tdoc ⌘T1-041972

CR-Form-v7.1

CHANGE REQUEST

⌘ **34.123-1** **CR** **1035** ⌘ **rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: | UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 Rel-5: Correction to GCF Package 4 RRC test case 8.3.1.18
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	TEI
Date:	⌘	05/11/2004
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

Ph2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*
Rel-7	*(Release 7)*

Reason for change:	⌘	Due to an ambiguity in section 8.3.1.7a (Physical channel failure) of TS 25.331. At the moment TS 25.331 does not exclusively mention whether a UE should omit the failure cause IE or set it to value "physicalChannelFailure" in case of a radio link failure as a result of a failed Cell Update Confirm procedure. Section 8.2.2.14 of TS 25.331 does mention about setting this cause for radio link failure during normal reconfiguration (bearer setup, bearer reconfiguration), but not for the case in test case 8.3.1.18. The proposal in the T1#25 meeting was that, due to this ambiguity present in 25.331 section 8.3.1.7a, the test prose and the TTCN should be modified to cater for both cases where the UE omits this value or sets the failure cause value
Summary of change:	⌘	Added failure cause set to ìNot Checkedî in Cell Update (step 10) message content
Consequences if not approved:	⌘	The test cases does not cater for UE which sets the failure cause value, might fail a conformant UE.

Clauses affected:	⌘	8.3.1.18.4

Other specs Affected:	⌘	Y	N		⌘
			X	Other core specifications	
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3.1.18 Cell Update: Radio Link Failure (T314>0, T315=0), CS RAB established

8.3.1.18.1 Definition

8.3.1.18.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

Ö

1> Paging response:

Ö

1> Radio link failure:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met:

2> if the UE is in CELL_DCH state and the criteria for radio link failure is met as specified in TS 25.331 subclause 8.5.6:

3> perform cell update using the cause "radio link failure".

Ö

When initiating the cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

2> in the variable RB_TIMER_INDICATOR, set the IE "T314 expired" and the IE "T315 expired" to FALSE;

2> if the stored values of the timer T314 and timer T315 are both equal to zero; or

2> if the stored value of the timer T314 is equal to zero and there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315":

Ö

2> if the stored value of the timer T314 is equal to zero:

Ö

2> if the stored value of the timer T315 is equal to zero:

3> release all radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT315";

3> in the variable RB_TIMER_INDICATOR set the IE "T315 expired" to TRUE.

2> if the stored value of the timer T314 is greater than zero:

3> if there are radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314":

4> start timer T314.

3> if there are no radio bearers associated with any radio access bearers for which in the variable ESTABLISHED_RABS the value of the IE "Re-establishment timer" is set to "useT314" or "useT315":

4> start timer T314.

2> if the stored value of the timer T315 is greater than zero:

Ö

2> for the released radio bearer(s):

3> delete the information about the radio bearer from the variable ESTABLISHED_RABS;

3> when all radio bearers belonging to the same radio access bearer have been released:

4> indicate local end release of the radio access bearer to upper layers using the CN domain identity together with the RAB identity stored in the variable ESTABLISHED_RABS;

4> delete all information about the radio access bearer from the variable ESTABLISHED_RABS.

2> select a suitable UTRA cell according to TS 25.304;

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;

1> set the variable CELL_UPDATE_STARTED to TRUE;

1> if the UE is not already in CELL_FACH state:

2> move to CELL_FACH state;

2> select PRACH according to TS 25.331 subclause 8.5.17;

2> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

2> use the transport format set given in system information as specified in TS 25.331 subclause 8.6.5.1.

1> if the UE performs cell re-selection:

2> clear the variable C_RNTI; and

2> stop using that C_RNTI just cleared from the variable C_RNTI in MAC.

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a cell update procedure:

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

2> submit the CELL UPDATE message for transmission on the uplink CCCH.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

Ö
If the received CELL UPDATE CONFIRM message would cause the UE to transit to CELL_DCH state:

1> if the UE failed to establish the physical channel(s) indicated in the received CELL UPDATE CONFIRM message according to the criteria defined in subclause 8.5.4 in TS 25.331are not fulfilled; or

Ö

the UE shall:
Ö

1> if the variable ORDERED_RECONFIGURATION is set to TRUE caused by the received CELL UPDATE CONFIRM message in case of a cell update procedure:

2> set the variable ORDERED_RECONFIGURATION to FALSE.

1> if V302 is equal to or smaller than N302:

2> select a suitable UTRA cell according to TS 25.304;

2> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3, except for the IE "Cell update cause" which shall be set to "Radio link failure";

2> submit the CELL UPDATE message for transmission on the uplink CCCH;

2> increment counter V302;

2> restart timer T302 when the MAC layer indicates success or failure to transmit the message.

1> if V302 is greater than N302:

Ö

Reference

3GPP TS 25.331 clause 8.3.1.2, 8.3.1.7a

8.3.1.18.3 Test purpose

1. To confirm that the UE shall try to find a new cell after detecting that a radio link failure has occurred.

2. To confirm that the UE performs a cell selection procedure when it fails to configure the physical channel(s) indicated in the CELL UPDATE CONFIRM message.

8.3.1.18.4 Method of test

Initial Condition

System Simulator: 2 cells (Cell 1 and cell 2 are active).
SYSTEM INFORMATION BLOCK TYPE 1 (see specific message contents).
UE: CS_DCCH+DTCH_DCH (state 6-9).

Specific Message Content

For SIB type 1 message to be transmitted throughout the test, use the message titled ìSystem Information Block type 1 (supported PLMN type is GSM-MAP)î as found in TS 34.108 clause 6, with the following exception.

Information Element	Value/remark
- T315	0

Test Procedure

Table 8.3.1.18

Parameter	Unit	Cell 1		Cell 2	
		T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	OFF	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	OFF	-75	-60

Table 8.3.1.18 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution. Column marked "T0" denote the initial conditions.
The UE is brought to CELL_DCH state in a cell 1 after making a successful outgoing call attempt. After the call has been established, SS configures its downlink transmission power settings according to column "T1" in table 8.3.1.18. The UE shall detect a radio link failure in cell 1.

Then it shall attempt to re-select to cell 2. After that, it shall transmit CELL UPDATE on the uplink CCCH to SS. The SS transmits CELL UPDATE CONFIRM message which includes dedicated transport and physical channel parameters on downlink DCCH. SS shall not configure according to this message. Instead, SS configures its downlink transmission power settings according to column "T0" in table 8.3.1.18. UE shall fail to establish the dedicated channel in cell 2.
UE shall re-select to cell 1 and transmit a CELL UPDATE message with IE "Cell update cause" set to "Radio link failure". Then SS responds with a CELL UPDATE CONFIRM message on downlink DCCH. Then the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH.

NOTE: If the UE fails the test because of a failure to reselect to a right cell, then the operator may re-run the test.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
0			Void	
1			Void	
2			Void	
3			Void	
4				SS configures cell 1 and 2 according to column "T1" in table 8.3.1.18. SS starts to listen to the uplink CCCH of cell 2.
5			Void	
6				The UE detects the radio link failure.
7	→		CELL UPDATE	The UE shall find a new cell 2 and the value "radio link failure" shall be set in IE "Cell update cause".
8	←		CELL UPDATE CONFIRM	Including dedicated physical channel parameters.
9				SS does not configure according to the message in step 8. SS configures cell 1 and 2 according to column "T0" in table 8.3.1.18.
10	→		CELL UPDATE	UE shall select cell 1 and transmit this message
11	←		CELL UPDATE CONFIRM	See message content.
12	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

System Information Block type 1 (FDD)

Use the default system information block with the same type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
- UE Timers and constants in connected mode	
- T312	2

CELL UPDATE (Step 7)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
-SRNC Identity	Check to see if set to value assigned in cell 1.
- S-RNTI	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to 'radio link failure'
RB timer indicator	
- T314 expired	FALSE
- T315 expired	TRUE

CELL UPDATE CONFIRM (Step 8 and 11)

Use the same message sub-type found in TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
RRC State indicator	CELL_DCH
UL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Added or Reconfigured TrCH information list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
DL Transport channel information common for all transport channels	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Added or Reconfigured TrCH information list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
CHOICE channel requirement	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Downlink information common for all radio links	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.
Downlink information per radio link list	Same as the set defined in RADIO BEARER SETUP message found in TS 34.108 clause 9 under condition A1, A2, A7 or A8.

CELL UPDATE (Step 10)

The same message found in TS 34.108 clause 9 shall be transmitted by the UE on the uplink CCCH, with the exception of the following IEs:

Information Element	Value/remark
U-RNTI	
-SRNC Identity	Check to see if set to value assigned in cell 1.
- S-RNTI	Check to see if set to value assigned in cell 1.
Cell Update Cause	Check to see if set to 'radio link failure'
Failure cause	This IE is not Checked.

8.3.1.18.5 Test requirement

After step 6, the UE shall detect the presence of cell 2, perform cell re-selection and transmit a CELL UPDATE message.
After step 9, the UE shall transmit a CELL UPDATE message with IE "Cell update cause" set to "Radio link failure".
After step 11, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

3GPP TSG-T1 Meeting #25
Malta, 1st ñ 5th November 2004

Tdoc ⌘T1-041977

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1** **CR** **1036** ⌘**rev** **-** ⌘ Current version: **5.9.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to Package 2 IR_U test case 12.8
Source:	⌘	Racal Instruments Wireless Solutions, an Aeroflex Company
Work item code:	⌘	TEI
Date:	⌘	05/11/04
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The $S_{search,RAT}$ in SYSTEM INFORMATION BLOCK TYPE 3 and 4 is currently set to -32dB, this value does not trigger the GSM measurement. As a result, UE does not perform measurement on GSM cell to reselect the GSM cell. $S_{search,RAT}$ shall be set to 20 dB, so that UE perform GSM measurement.
Summary of change:	⌘	Change the value of $S_{search,RAT}$ in SYSTEM INFORMATION BLOCK TYPE 3 and SYSTEM INFORMATION BLOCK TYPE 4 from -32 to 20 dB.
Consequences if not approved:	⌘	Test case will fail

Clauses affected:	⌘	12.8

Other specs affected:	⌘	Y	N		⌘	
			X	Other core specifications		
		X		Test specifications		34.123-3
			X	O&M Specifications		

Other comments:	⌘	There will be impact on TTCN. This change is already accepted as per T1s0642 Change label: RACAL#IR_U0153).

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look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

<Start of Modification>

12.8 GMM READY timer handling

12.8.1 Definition

12.8.2 Conformance requirement

If a READY timer value is received by an UE capable of both UMTS and GSM in the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, then the received value shall be stored by the UE in order to be used at an intersystem change from UMTS to GSM.

Reference

3GPP TS 24.008 clause 4.7.2.1

12.8.3 Test purpose

To verify that READY timer value received in UTRA can be used in GSM.

12.8.4 Method of test

12.8.4.1 Test procedure

Initial condition

System Simulator:

Two cells (not simultaneously activated), cell A (UTRAN) in MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B (GSM) in MCC1/MNC1/LAC1/RAC2 (RAI-4).

Cell B is in neigbour cell list of cell A.
Both cells are operating in network operation mode II.
The SIB1 IE "CN domain specific NAS system information", for the CS Domain, is set to value "00 00" in cell A (UTRAN).
The value of ATT flag in SIB3 IE ìControl Channel Descriptionî is set to value ì0î in cell B (GSM).

In SIB3 and SIB4 the IE ìSsearchRATî, is set to value ì20dBî in cell A (UTRAN).

User Equipment:

The UE has a valid IMSI.

Related ICS/IXIT statements

UE supports both GSM/GPRS and UTRAN Radio Access Technologies Yes/No
UE supports UTRAN interactive/ background UL: 64kbps, DL: 64 kbps/PS RAB + uplink:3.4 DL:3.4 kbps SRBs Yes/No
UE operation mode A Yes/No
Switch off on button Yes/No
Automatic PS attach procedure at switch on or power on Yes/No

Test procedure

An attach is performed.

T3314; set to 60 seconds

Expected Sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell A.
1		SS		Set the cell type of cell A to the "Serving cell". Cell B is switched off. (see note)
2	UE			The UE is set in UE operation mode A (see ICS). If UE operation mode A not supported set the UE in operation mode C. The UE is powered up or switched on and initiates an attach (see ICS).
2a		SS		SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c		SS		The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1 T3314 = 60 seconds T3312=6 minutes
5	->		ATTACH COMPLETE	
5a		SS		The SS releases the RRC connection.
6		SS		Set the cell type of cell A to the "Suitable neighbour cell".Set the cell type of cell B to the "Serving cell".
7	UE			UE establish cell reselection to GSM system The following messages are received on Cell B (GERAN)
8	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1
9	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
10	->		ROUTING AREA UPDATE COMPLETE	
11		SS		The SS verifies that the time between the end of Step 10 and the periodic RA updating is Ready Timer Period (T3314) + Periodic Routing Area Updating timer (T3312) (+/- 10%)
12	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updatingí Mobile identity=P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-4
13	<-		ROUTING AREA UPDATE ACCEPT	Update type = 'RA updated'
14	UE			UE is swithed off or power is removed (see ICS)
15	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, GPRS detach'
NOTE: The definitions for "Non-Suitable cell" and "Serving cell" are specified in TS34.108 clause 6.1 "Reference Radio Conditions for signalling test cases only".				

Specific message contents

None.

12.8.5 Test requirements

At step4, when the UE receives the ATTACH ACCEPT or the ROUTING AREA UPDATE ACCEPT messages, UE shall:

- store the received READY timer value.

At step12, UE shall establish periodic Routing Area Update after Timer Period (T3314) + Periodic Routing Area
Updating timer (T3312) (+/- 10%).

<End of Modification>