Technical Specification Group Terminals
Meeting #17, Biarritz, France, 4-6 September 2002

TSGT#17(02)0187
page 1 of 2

Source: **T1**

Title: **CR's to TS 34.123-1 v5.0.1 related to package 1 and 2 test cases**

Agenda item: **5.1.3**

Document for: **Approval**

This document contains 21 CRs to TS 34.123-1 v5.0.1 related to package 1 and 2 test cases. These CRs have been agreed by T1 and are put forward to TSG T for approval.

> NOTE: TS 34.123-1 R99, Rel-4 and Rel-5 and TS 34.123-1 Rel-4 were merged at T#13. This means that test cases for both releases are included in TS 34.123-1 Rel-4 and therefore this is the only release being maintained.

CR related to corrections to idle mode test cases:

Spec	CR	Rev	Release	Subject	Cat	Version Current	Version New	Doc-2nd-Level	Work item	Releases affected
34.123-1	260	-	Rel-5	Corrections to clause 6.1.1.4 for Package 1 (Idle Mode)	F	5.0.1	5.1.0	T1-020512	TEI	R99, Rel-4, Rel-5
34.123-1	263	-	Rel-5	Addition of ITU Band 3 reference test frequencies to Table 6.3	F	5.0.1	5.1.0	T1-020515	TEI	R99, Rel-4, Rel-5
34.123-1	274	-	Rel-5	Corrections to clause 6 for Package 2 (Idle Mode)	F	5.0.1	5.1.0	T1-020528	TEI	R99, Rel-4, Rel-5

CR related to corrections to MAC test cases:

Spec	CR	Rev	Release	Subject	Cat	Version Current	Version New	Doc-2nd-Level	Work item	Releases affected
34.123-1	265	-	Rel-5	Correction to MAC test cases 7.1.1.2 and 7.1.1.8	F	5.0.1	5.1.0	T1-020517	TEI	R99, Rel-4, Rel-5
34.123-1	266	-	Rel-5	Corrections to clause 7.2 for Package 1 test cases (RLC)	F	5.0.1	5.1.0	T1-020518	TEI	R99, Rel-4, Rel-5

CR related to corrections to RRC test cases:

Spec	CR	Rev	Release	Subject	Cat	Version Current	Version New	Doc-2nd-Level	Work item	Releases affected
34.123-1	267	-	Rel-5	Corrections to package1 test cases in clause 8.1 as T1S-020352rev1	F	5.0.1	5.1.0	T1-020519	TEI	R99, Rel-4, Rel-5
34.123-1	268	-	Rel-5	CR to package1 clause 8.2 of TS34.123-1	F	5.0.1	5.1.0	T1-020520	TEI	R99, Rel-4, Rel-5
34.123-1	269	-	Rel-5	Corrections to package 1 TCs in clause 8.4 of TS 34.123-1 as T1S-020355rev1	F	5.0.1	5.1.0	T1-020521	TEI	R99, Rel-4, Rel-5
34.123-1	270	-	Rel-5	Corrections to Clause 8.1.10 for Package 2 (System Information)	F	5.0.1	5.1.0	T1-020522	TEI	R99, Rel-4, Rel-5
34.123-1	271	-	Rel-5	Corrections to clause 8.3.7.1- 8.3.7.4 for Package 2 test cases (Inter System HO)	F	5.0.1	5.1.0	T1-020523	TEI	R99, Rel-4, Rel-5
34.123-1	276	-	Rel-5	Corrections to package1 test cases in clause 8.3	F	5.0.1	5.1.0	T1-020532	TEI	R99, Rel-

										4, Rel-5
34.123-1	277	-	Rel-5	CR to package2 clause 8.2 of TS34.123-1	F	5.0.1	5.1.0	T1-020533	TEI	R99, Rel-4, Rel-5
34.123-1	296	-	Rel-5	Corrections to package 2 test cases in clause 8.3 (T1S-020494rev1)	F	5.0.1	5.1.0	T1-020557	TEI	R99, Rel-4, Rel-5
34.123-1	297	-	Rel-5	Corrections to package 2 TCs in clause 8.4 of TS 34.123-1 (T1S-020495rev1)	F	5.0.1	5.1.0	T1-020558	TEI	R99, Rel-4, Rel-5
34.123-1	275	-	Rel-5	Correction of package 2 test case in clause 8.3.1.4, SS cell update waiting timer	F	5.0.1	5.1.0	T1-020531	TEI	R99, Rel-4, Rel-5

CR related to corrections to CC and PS NAS test cases:

Spec	CR	Rev	Release	Subject	Cat	Version Current	Version New	Doc-2nd-Level	Workitem	Releases affected
34.123-1	295	-	Rel-5	Corrections and modifications to clause 9 of Package 2 test cases (MM)	F	5.0.1	5.1.0	T1-020556	TEI	R99, Rel-4, Rel-5
34.123-1	299	-	Rel-5	Update of Conformance requirement in test case 11.1.1.1	F	5.0.1	5.1.0	T1-020560	TEI	R99, Rel-4, Rel-5
34.123-1	306	-	Rel-5	Clarifications in PDP Context deactivation test cases (revision of T1S020450)	F	5.0.1	5.1.0	T1-020568	TEI	R99, Rel-4, Rel-5
34.123-1	304	-	Rel-5	Modifications and corrections of GMM test case	F	5.0.1	5.1.0	T1-020566	TEI	R99, Rel-4, Rel-5

CR related to corrections to Radio Bearer test cases:

Spec	CR	Rev	Release	Subject	Cat	Version Current	Version New	Doc-2nd-Level	Workitem	Releases affected
34.123-1	284	-	Rel-5	Clarification of package 1 and 2 RB test cases.	F	5.0.1	5.1.0	T1-020545	TEI	R99, Rel-4, Rel-5
34.123-1	285	-	Rel-5	Details of radio bearer tests in clause “14.4 Combinations on SCCPCH” and “14.5 Combinations on PRACH”	F	5.0.1	5.1.0	T1-020546	TEI	R99, Rel-4, Rel-5

3GPP TSG-T1 Meeting #16
Yokohama, Japan, 29 July – 2 August 2002

Tdoc ⌘ T1-020512

3GPP TSG-T1/SIG Meeting #24
Yokohama, Japan, 29-31 July 2002

Tdoc ⌘ T1S-020484

CR-Form-v7

CHANGE REQUEST

⌘	**TS 34.123-1**	**CR**	**260**	⌘ **rev**	**-**	⌘	Current version:	**5.0.1**	⌘

*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 clause 6.1.1.4 for Package 1 (Idle Mode)		
Source:	⌘	Ericsson		
Work item code:	⌘	TEI	***Date:*** ⌘	2002-07-28
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:* *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:	⌘	To not cause SS to fail a good UE due to SS tolerances then the transmission power level CPICH_Ec between cells should differ at least 5 dBm/3.84MHz.
Summary of change:	⌘	Changed power levels for CPICH_Ec for FDD and P-CCPCH_RSCP for TDD to be 5 dBm.
Consequences if not approved:	⌘	Test case could fail a good UE.

Clauses affected:	⌘	6.1.1.4				
		Y	**N**			
Other specs affected:	⌘		**X**	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘	Affects R99, R4 and R5 UE 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.

<Start of modified section>

6.1.1.4 PLMN selection of RPLMN, HPLMN, UPLMN and OPLMN; Automatic mode

6.1.1.4.1 Definition

Test to verify that in Automatic Network Selection Mode, the UE selects PLMNs in a prioritized order. Forbidden PLMNs shall not be selected. If available, the RPLMN shall be selected at switch-on, otherwise the list shall include in priority order HPLMN, User-PLMN and Operator-PLMN. The last priority in the list is "Other PLMN/access technology combinations" which is not included in this test.

Only UTRAN cells and a UE equipped with a USIM with Radio Access Technology fields set to UTRAN are considered.

6.1.1.4.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage,the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   2.1 HPLMN (if not previously selected);

   2.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   2.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   2.4 Other PLMN/access technology combinations with received high quality signal in random order;

   2.5 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.

3. If a "PLMN not allowed" message is received by an MS in response to an LR request from a VPLMN, that VPLMN is added to a list of "forbidden PLMNs" in the SIM and thereafter that VPLMN will not be accessed by the MS when in automatic mode. A PLMN is removed from the "forbidden PLMNs" list if, after a subsequent manual selection of that PLMN, there is a successful LR. This list is retained when the MS is switched off or the SIM is removed. The HPLMN shall not be stored on the list of "forbidden PLMNs".

References

1. TS 23.122, clause 4.4.3.1.
2. TS 23.122, clause 4.4.3.1.1.
3. TS 23.122, clause 3.1.

NOTE: TS 31.102 defines the USIM fields.

6.1.1.4.3 Test purpose

1. To verify that if available, the RPLMN is selected at switch-on.
2. To verify that in Automatic Network Selection Mode Procedure, the UE selects the RPLMN, HPLMN, UPLMN and OPLMN in a prioritized order.
3. To verify that forbidden PLMNs are not selected.

6.1.1.4.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

"IMSI attach" flag in the BCCH is set to allowed.

Cell levels are from table 6.3 (FDD).

All Radio Access Technology USIM fields and cells are UTRAN.

Cell	CPICH_ Ec [dBm/3.84 MHz] (FDD)	P-CCPCH_ RSCP [dBm] (TDD)	Test Channel	PLMN
Cell 1	-60~~72~~	-50~~61~~	1	PLMN 1
Cell 2	-65~~75~~	-55~~64~~	2	PLMN 2
Cell 3	-70~~78~~	-60~~67~~	3	PLMN 3
Cell 4	-75~~81~~	-65~~70~~	4	PLMN 4
Cell 5	-80~~84~~	-70~~73~~	5	PLMN 5
Cell 6	-85~~87~~	-75~~76~~	6	PLMN 6

The UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF_{LOCI}		PLMN 1
$EF_{HPLMNwAcT}$	1st	PLMN 2
$EF_{PLMNwAcT}$	1st	PLMN 3
	2nd	PLMN 4
$EF_{OPLMNwAcT}$	1st	PLMN 5
	2nd	PLMN 6
EF_{FPLMN}	PLMN 3	

Test procedure

Method C is applied.

a) The SS activates cells 1-6 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.

d) Cell 1 is switched off.

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

f) Cell 2 is switched off.

g) The SS waits for random access requests from the UE.

i) Cell 4 is switched off.

j) The SS waits for random access requests from the UE.

k) Cell 5 is switched off.

l) The SS waits for random access requests from the UE.

m) Cell 6 is switched off.

6.1.1.4.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN 1.

2) In step e), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN 2.

3) In step g), the response from the UE shall be on Cell 4. The displayed PLMN shall be PLMN 4.

4) In step j), the response from the UE shall be on Cell 5. The displayed PLMN shall be PLMN 5.

5) In step l), the response from the UE shall be on Cell 6. The displayed PLMN shall be PLMN 6.

6) After step m), the UE shall inform that only limited service is possible

<End of modified section>

3GPP TSG–T1 Meeting #16
3GPP TSG–T1/SIG Meeting #24
Yokohama, Japan, 29th July - 2 Aug.2002

Tdoc: T1-020515
Tdoc: T1S-020433

CR-Form-v4

CHANGE REQUEST

⌘ **34.123-1 CR 263** ⌘ ev - ⌘ Current version: 5.0.1 ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Addition of ITU Band 3 reference test frequencies to Table 6.3		
Source:	⌘	MCC Task 160 and Motorola		
Work item code:	⌘	TEI	***Date:*** ⌘	19 July 2002
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)*

Reason for change: ⌘

1. Table 6.3 has reference frequencies (UARFCN) only for ITU Band 1 and 2. 34.108 clause 5.1.1 has reference test frequencies for 3 Bands
2. Clarification needed that the UARFCN given is for Uplink.

Summary of change: ⌘

- Table 6.3 is appended with reference test frequencies for ITU Band 3
- Clarification needed that the UARFCN given is for Uplink

Consequences if not approved: ⌘ Information will be incomplete and confusing

Clauses affected: ⌘ 6.1.2.8

Other specs affected: ⌘
- ☐ Other core specifications ⌘
- ☐ Test specifications
- ☐ O&M Specifications

Other comments: ⌘ Affects R99, REL-4, REL-5

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6 Idle mode operations

In the following paragraphs some explanatory text is given concerning the nature of the tests in this clause and the general behaviour of the SS is described.

Since the conformance requirements of most of the tests in this clause cannot be tested explicitly, testing is done implicitly by testing the UE behaviour from its responses to the SS.

In some cases, a test is performed in multiple stages in order that the requirements can be tested within the above constraints.

For any UE all the carriers are in its supported band(s) of operation.

Unless otherwise stated in the method of test, in all of the tests of this clause:

- the default values of the system information data fields given in TS 34.108 are used;
- the UE is equipped with a USIM containing default values. The USIM is in the idle updated state in the default location area with a TMSI assigned at the beginning of each test;
- the cells shall be configured such that Squal>0 (FDD only) and Srxlev>0 while applying Qqualmin (FDD only) and Qrxlevmin in table 6.1. In addition, for an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm (definition of High Quality cell, see TS 25.304, clause 5.1.2.2). In addition, for a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to –84 dBm (definition of High Quality cell, see TS 25.304, clause 5.1.2.2).

Three different methods A, B and C are applied in the tests:

Method A:

- the SS is continuously paging the UE on all cells at the start of the test and does not respond to RACH requests from the UE (which causes a cell reselection). Where a test specifies that the UE is not paged on a particular cell, only idle paging is transmitted. This method is similar to the one used in TS 51.010-1, clause 20.

Method B:

- the SS is continuously paging the UE on all cells at the start of the test and responds to RACH requests from the UE with an IMMEDIATE ASSIGNMENT REJECT (GERAN cell) or RRC CONNECTION REJECT (UTRAN cell) message which causes the UE to return to Idle mode. Where a test specifies that the UE is not paged in a particular cell, only idle paging is transmitted.

Method C:

- no continuously paging as in method A or B. Normal response to RACH requests so Location Updating and Calls can be done.

In case a test specifies that UE shall read System Information on BCCH while camped on a UTRAN cell, SS shall notify UE on the BCCH modification by sending a PAGING TYPE 1 message to UE. This message shall contain IE BCCH Modification Info with the following settings:

Information Element	Value/remark
BCCH modification info	
MIB Value Tag	Set to the same value as the value tag of the MIB after the BCCH modification
BCCH Modification time	Not present

Table 6.1: Default values of the system information fields

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)	-24 dB
Qrxlevmin (FDD)	-115 dBm
Qrxlevmin (TDD)	-103 dBm
DRX cycle length	1,28 s

CPICH_Ec/Io and SCH_Ec/Io shall fulfil requirements in TS 25.133, clause 8.1.2.2.1: The UE is able to identify a new detectable cell belonging to the monitored set within $T_{\text{identify intra}}$ when CPICH Ec/Io $\geq$ -20 dB and SCH_Ec/Io $\geq$ -20 dB.

It is a UE option whether to indicate access technologies to the user (TS 23.122, clause 4.4.3.1.2). Therefore, for combined UTRAN/GSM tests, it is indicated in parentheses which access technology shall be indicated to the user if the UE has this capability.

If a parameter is indicated with a *, it means that the parameter is calculated internally in the UE and is only shown for clarification of the test procedure.

The PLMN numbers indicated in table 6.2 are used in test cases to associate a cell with an MCC and MNC for that cell. If no PLMN is explicitly specified, the default value is PLMN 1.

Table 6.2: Location Area Information (LAI) in System Information type 3 messages broadcast on the BCCH (GSM) or System Information Block Type 1 broadcast on the BCH (UMTS)

PLMN	MCC1	MCC2	MCC3	MNC1	MNC2	MNC3	LAC
1	0	0	1	0	1	Not present	x
2	0	0	2	1	1	Not present	x
3	0	0	4	2	1	Not present	x
4	0	0	5	3	1	Not present	x
5	0	0	6	4	1	Not present	x
6	0	0	7	5	1	Not present	x
7	0	0	8	6	1	Not present	x
8	0	0	9	7	1	Not present	x
9	0	1	0	0	2	Not present	x
10	0	1	1	1	2	Not present	x
11	0	1	2	2	2	Not present	x
12	0	1	3	3	2	Not present	x
NOTE: 'x' denotes any value.							

References: TS 23.122, annex A and TS 23.003, clause 2.

The test channel numbers indicated in tables 6.3, 6.4 and 6.5 are used in test cases to associate a cell with a frequency for that cell. The frequencies for GSM and DCS cells in table 6.5 are identical to those used in TS 51.010-1, clause 26.3.1. The RF signal levels for GSM cells are given in table 6.5 for UTRAN FDD cells in TS 34.108, table 6.1.1 and for UTRAN TDD cells in TS 34.108, table 6.1.5. If no channel is explicitly specified, the default value is Test Channel 1.

Table 6.3: UTRA (FDD) test frequencies

	ITU region 1		ITU region 2		ITU region 3	
Test Channel	CPICH_Ec dBm / 3.84 MHz	Uplink UARFCN	CPICH_Ec dBm / 3.84 MHz	Uplink UARFCN	CPICH_Ec dBm / 3.84 MHz	Uplink UARFCN
1	-72	9 613	-72	9 263	-72	8 563
2	-75	9 663	-75	9 313	-75	8 613
3	-78	9 713	-78	9 363	-78	8 663
4	-81	9 763	-81	9 413	-81	8 713
5	-84	9 813	-84	9 463	-84	8 763
6	-87	9 863	-87	9 513	-87	8 813

References: TS 34.108, clause 5.1.1 and TS 34.121, clause 4.

Table 6.4: UTRA TDD test frequencies

			ITU region 2	
Test Channel	P-CCPCH_ RSCP [dBm]	UARFCN	P-CCPCH_ RSCP [dBm]	UARFCN
1	-61	9 513	-61	9 263
2	-64	9 550	-64	9 537
3	-67	9 587	-67	9 663
4	-70	10 063	-70	9 937
5	-73	10 087	-73	9 563
6	-76	10 112	-76	9 637

References: TS 34.108, clause 5.1.2 and TS 34.122, clause 4.

Table 6.5: GSM/DCS test frequencies and levels

	GSM 900		DCS 1 800	
Test Channel	level dBµVemf( ) / dBm	BCCH ARFCN	level dBµVemf( ) / dBm	BCCH ARFCN
1	+65 / -48	1	+65 / -48	520
2	+63 / -50	7	+63 / -50	580
3	+61 / -52	39	+61 / -52	610
4	+55 / -58	65	+55 / -58	702
5	+59 / -54	66	+59 / -54	703
6	+57 / -56	85	+57 / -56	830
7	+55 / -58	97	+55 / -58	885
8	+53 / -60	124		

	GSM 450		DCS 480	
Test Channel	level dBµVemf( ) / dBm	BCCH ARFCN	level dBµVemf( ) / dBm	BCCH ARFCN
1	+65 / -48	259	+65 / -48	306
2	+63 / -50	261	+63 / -50	308
3	+61 / -52	267	+61 / -52	314
4	+55 / -58	268	+55 / -58	315
5	+59 / -54	281	+59 / -54	328
6	+57 / -56	288	+57 / -56	335
7	+55 / -58	291	+55 / -58	338
8	+53 / -60	293	+53 / -60	340

	Multiband 900/1800		**PCS 1900**	
Test Channel	**level dBμVemf( ) / dBm**	**BCCH ARFCN**	**level dBmVemf( ) / dBm**	**BCCH ARFCN**
1	+65 / -48	520	+65 / -48	512
2	+63 / -50	7	+63 / -50	520
3	+61 / -52	39	+61 / -52	580
4	+55 / -58	702	+55 / -58	610
5	+59 / -54	66	+59 / -54	702
6	+57 / -56	85	+57 / -56	703
7	+55 / -58	885	+55 / -58	800
8	+53 / -60	124		

	Multiband 450/900		**Multiband 480/900**	
Test Channel	**level dBμVemf( ) / dBm**	**BCCH ARFCN**	**level dBμVemf( ) / dBm**	**BCCH ARFCN**
1	+65 / -48	1	+65 / -48	1
2	+63 / -50	261	+63 / -50	308
3	+61 / -52	267	+61 / -52	314
4	+55 / -58	65	+55 / -58	65
5	+59 / -54	281	+59 / -54	328
6	+57 / -56	288	+57 / -56	335
7	+55 / -58	124	+55 / -58	124
8	+53 / -60	293	+53 / -60	340

	Multiband 450/1800		**Multiband 480/1800**	
Test Channel	**level dBμVemf( ) / dBm**	**BCCH ARFCN**	**level dBμVemf( ) / dBm**	**BCCH ARFCN**
1	+65 / -48	520	+65 / -48	520
2	+63 / -50	261	+63 / -50	308
3	+61 / -52	267	+61 / -52	314
4	+55 / -58	702	+55 / -58	702
5	+59 / -54	281	+59 / -54	328
6	+57 / -56	288	+57 / -56	335
7	+55 / -58	885	+55 / -58	885
8	+53 / -60	293	+53 / -60	340

For testing an E-GSM Mobile station, the BCCH ARFCN of GSM Test Channel 7 at GSM 900 column shall be 985 (instead of 97). For testing an R-GSM Mobile station, the BCCH ARFCN of GSM Test Channel 7 at GSM 900 column shall be 965 (instead of 97).

3GPP TSG-T1 Meeting #16 **_Tdoc ⌘ T1-020517_**
Yokohama, Japan, 29th July – 2 August 2002

3GPP TSG-T1/SIG Meeting #24 **_Tdoc T1S-020445_**
Yokohama, Japan, July 29th-31st, 2002

CR-Form-v5.1

CHANGE REQUEST

⌘ **TS 34.123-1** **CR** **265** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to MAC test cases 7.1.1.2 and 7.1.1.8
Source:	⌘	Ericsson
Work item code:	⌘	TEI
Date:	⌘	2002-07-21
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)*

Reason for change:	⌘	Correction to definition of initial condition for test cases 7.1.1.2 and 7.1.1.8.
Summary of change:	⌘	Removed text “with following exceptions:” (as there are no exceptions listed) in clauses 7.1.1.2.4 and 7.1.1.8.4.
Consequences if not approved:	⌘	Confusing wording

Clauses affected:	⌘	7.1.1.2.4 and 7.1.1.8.4
Other specs Affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ 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>

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
  …

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

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 (Interactive/Background 32 kbps RAB + SRB for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH) with the following exceptions for the FACH:

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 ½
	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.		

and using the configuration in TS 34.108 clause 6.10.2.4.3.3 for the PCH.

The TFCS should be configured as specified in clause 6.10.2.4.3.3.1.4.

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 (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.

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)~~ with the following exception:~~.

-

Test procedure

a) The SS receives the PAGING RESPONSE 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 (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	00'B
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 monitors the RACH for 10 s to ensure that no RACH access occurs.

d) The SS again transmits MAC PDUs as in b) above, but this time uses the correct TCTF of 11’B. 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):

Iteration	**TCTF Value**
2	01000000'B
3	01000001'B
4	10000000'B
5	10000001'B

Expected sequence

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 = 00'B, 0100 0000’B, 0100 0001’B, 1000 0000’B, or 1000 0001’B,
2a			wait for T = 10 s	SS monitors for RACH access attempts
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.
5	→		RRC Status PDU	

Steps 2 – 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 –1).

Specific Message Contents

None

7.1.1.2.5 Test Requirement

In step a) the TCTF field should have the value 00'B. Note that this may be implied from receipt of the PAGING RESPONSE 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 PDU on SRB # 2, and RLC Status PDU on SRB # 3 with TCTF field set to value ‘01’ B.

<End of modified section>

<Start of next modified section>

7.1.1.8 DTCH or DCCH mapped to DCH / Invalid C/T Field

7.1.1.8.1 Definition

This tests that the MAC applies the correct header to the MAC PDU according to the type of logical channel carried on the DCH transport channel. Incorrect application of MAC headers would result in inoperation of the UE.

7.1.1.8.2 Conformance requirement

DTCH or DCCH mapped to DCH, no multiplexing of dedicated channels on MAC: -no MAC header is required.

DTCH or DCCH mapped to DCH, with multiplexing of dedicated channels on MAC: -C/T field is included in MAC header.

The following fields are defined for the MAC header:

- C/T field
  The C/T field provides identification of the logical channel instance when multiple logical channels are carried on the same transport channel…

Structure of the C/T field

C/T field	Designation
0000	Logical channel 1
0001	Logical channel 2
...	...
1110	Logical channel 15
1111	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 b).

7.1.1.8.3 Test purpose

1. To verify that the UE discards PDUs with reserved or incorrect values in C/T field.
2. To verify that the C/T field is correctly applied when a DTCH or DCCH is mapped to a DCH.

7.1.1.8.4 Method of test

Initial conditions

System Simulator:

- 1 cell, default parameters, Ciphering Off.

The DCH/DPCH is configured as specified in TS 34.108 clause 6.10.2.4.1.2: Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH) with the following exception:

Higher layer	RAB/signalling RB		RB#3 (SRB#3)
	User of Radio Bearer		NAS_DT High prio
RLC	Logical channel type		DCCH
	RLC mode		TM
	Payload sizes, bit		148
	Max data rate, bps		3700
	RLC header, bit		0
MAC	MAC header, bit		0 (note)
	MAC multiplexing		Simulated by SS
Layer 1	TrCH type		DCH
	TB sizes, bit		148
	TFS	TF0, bits	0 x 148
		TF1, bits	1 x 148
	TTI, ms		40
	Coding type		CC 1/3
	CRC, bit		16
	Max number of bits/TTI before rate matching		516
	Uplink: Max number of bits/radio frame before rate matching		129
	RM attribute		155-165
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.		

The TFCS should be configured as specified in clause 6.10.2.4.1.2.1.1.2.

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 (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.

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 6-1 (CS-CELL_DCH_INITIAL). During this procedure the RRC CONNECTION SETUP message shall allocate a DCH to carry the signalling radio bearers as follows:

1. The DCH/DPCH is configured as specified in TS 34.108 clause 6.10.2.4.1.2: Stand-alone UL:3.4 DL:3.4 kbps SRBs for DCCH).~~ with the following exception:~~

Test procedure

a) The SS receives the PAGING RESPONSE message from the UE and checks the C/T field.

b) The SS transmits MAC PDUs containing RLC AM PDUs containing a DIRECT TRANSFER message containing

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 (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
C/T	0100'B

c) The SS monitors the DCH (DCCH/SRB#3) for 10 s to ensure that no transmissions occur.

d) The SS again transmits MAC PDUs as in b) above, but this time uses the correct C/T value for AM-DCCH NAS High Priority of 0010’B. 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 C/T field set as follows in step b):

Iteration	C/T Value
2	1111'B

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	→		PAGING RESPONSE	Check C/T field
2	←		MAC PDU(C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with incorrect C/T = 0100'B, or 1111’B
2a			wait for T = 10 s	SS monitors for DCH (SRB#3) transmissions
3	←		MAC PDU(C/T, RLC AM PDU(SN=x, DIRECT TRANSFER))	Sent with correct C/T = 0010'B
4	→		RLC-STATUS-PDU	ACK PDUs with SN = x C/T Field is recognised as correct for the DCCH
5	→		RRC Status PDU	

Steps 2 to 5 of the expected sequence are repeated for iteration 2. Note: For iteration 2 the SN in steps 2 and 4 starts with x+1.

Specific Message Contents

None

7.1.1.8.5 Test Requirement

In step a) the C/T field should be set to the Logical Channel ID for SRB #3 (0010'B). Note that this may be implied from receipt of the PAGING RESPONSE message correctly by the SS test script.

During the test the SS shall request RLC status reports 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 a RLC Status PDU on SRB # 3 with C/T field set to ‘0010’B and RRC Status PDU on SRB # 2.

<End of modified section>

3GPP TSG-T1 Meeting #16 **Tdoc ⌘ T1-020518**
Yokohama, Japan, 29th July – 2 August 2002

3GPP TSG-T1/SIG Meeting #24 **Tdoc ⌘ T1S-020501**
Yokohama, Japan, 29-31 July 2002

CR-Form-v7

CHANGE REQUEST

⌘ **TS 34.123-1** **CR** **266** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

*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 clause 7.2 for Package 1 test cases (RLC)	
Source: ⌘	Ericsson, Siemens, Nortel, Rohde & Schwarz, Qualcomm	
Work item code: ⌘	TEI	***Date:*** ⌘ 2002-07-30
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. Editorial corrections and clarifications as agreed between Ericsson, Rohde & Schwarz, Siemens and Nortel at T1/SIG#23
2. Editorial corrections provided in T1S-020377 by Siemens at T1/SIG#24.
3. Conformance requirements and references out of date for many TCs.
4. Correction according to CR237 (T1-020362) agreed at T1#15 but not included in V5.0.1 of 34.123-1 (POLL_PDU to be 16 instead of 8 in clause 7.2.3.23.4).
5. Editorial corrections and clarifications received from RAN2/Qualcomm in T1S-020505

Summary of change: ⌘ General Issues covered by this CR

- Replaced 'should' by 'shall' in Test Requirements.According to the general ETSI rules for producing standards, a requirement is not to be expressed using the term 'should'.
- Timeout values are treated with tolerances as defined in clause 4.2.3 of 3GPP TS 34.108. Therefore the nominal timer values shall be used throughout this specification: timeouts 'shall' have a nominal value, not 'should' have a nominal value. All tolerences removed from required timer values where the tolerence is coverd by clause 4.2.3 of 3GPP TS 34.108.
- SDU/PDU numbering using ceil(x/y) is only informative when testing

protocol timers.In some Conformance Test Specifications where protocol timers are tested, the 'Comments' column in the 'Expected sequence' makes also reference to SDU numbers, and the ceil(x/y) function is used to indicate the SDU or PDU number, after which the timeout is expected to occur, i.e. a corresponding PDU (e.g. STATUS) is received from the UE. Accounting for timer tolerances, this might not be the exact PDU number received during testing. Solution> Added statement that SDU and PDU numbers given in expected sequence are informative, where appropriate.

- Definition section: Text 'payload unit' should be substituted with text 'PDU' where appropriate.
- Updated Conformance requirements and references where appropriate (but not for 15 bit LI or SDU discard conformance tests).
- General issues based on comments from RAN2/Qualcomm in T1S-020505:
  - Aligned LI naming with core spec (use “Length Indicator” instead of length indicator or LI).
  - Clarified that the size of the LIs should not be tested but rather assumed.

Specific Issues covered by this CR where the issue is not covered by one of the general issues above:

7.2.2.3

Test Purpose formulation: Replace item 1 by:"1. To test that the UE correctly segments a large SDU, includes a LI indicating padding in the RLC PDU carrying the last SDU segment, and adds padding at the end."

Solution> Test Purpose updated with suggested text.

Test Procedure Under b) it should be 'PDUs' instead of 'PDU', because it is important for this test that 2 PDUs are transmitted and received.

Solution> 's' added to 'PDU' in b).

7.2.2.5

Test Purpose formulation: Only one reserved LI value is tested. Better: "To test that PDUs with invalid length indicator '111 1110' are discarded by the receiving RLC."

Solution> Test Purpose updated with suggested text.

7.2.3.2

Test Purpose formulation: The formulation is wrong...

Solution> Replaced existing formulation with that suggested by Ericsson rather than the one suggested by R&S (which was a bit wordy and somewhat outside the scope of the test).

7.2.3.6

Test Requirements: Clarification. Replace: The UE shall indicate that the PDU with sequence number 2 was not received. With: The UE shall return a STATUS PDU indicating that the PDU with sequence number 2 was not received.

Solution> Replaced.

7.2.3.14

Test Purpose: The Test purpose formulation has the format of a list with numbering, but there is only one item. The number "1." should be removed.

Solution> Removed 1.

7.2.3.20

Expected Sequence: Change from 10s to 10*TTI in step 9a.

Solution> Replaced step 9a comment: SS waits 10s to secure no more new PDUs are received. With: SS waits 10 TTI periods to ensure no more new PDUs are received.

7.2.3.21

Test Purpose formulation: The TP should not be presented as a numbered list item, since there are no other items.

Solution> Removed 1.

7.2.3.22

Test Purpose formulation: The TP should not be presented as a numbered list item, since there are no other items.

Solution> Removed 1.

Test Procedure: The following should be added at the end of the Test Procedure:"The test case is run once for each set of initial RLC parameters."

Solution> Added suggested text.

7.2.3.23

Test Purpose formulation: The TP should not be presented as a numbered list item, since there are no other items.

Solution> Removed 1.

POLL_PDU changed to be 16 instead of 8 in table in clause 7.2.3.23.4. This change was introduced in CR237 (T1-020362) agreed at T1#15 but was not included in V5.0.1 of 34.123-1

7.2.3.25

Test Purpose formulation: The TP should not be presented as a numbered list item, since there are no other items.

Solution> Removed 1.

Expected Sequence: The comment column should contain comments for steps 5 and 10 (receiving STATUS PDUs), e.g.:Step 5: SN = 7 missingStep 10: SN = 7, 13, 14 missing.

Expected Sequence: In step 7 replace the comment by:"SS continues to transmit RLC SDUs".

Solution> Added suggested comments.

7.2.3.26

Test Purpose formulation: The TP should not be presented as a numbered list item, since there are no other items.

Solution> Removed 1.

Expected Sequence: In step 6 replace the comment by:"SS continues to transmit RLC SDUs".

Solution> Added suggested comments.

Changes to test case 7.2.3.26 based on comments from RAN2/Qualcomm in T1S-020505:

- Corrected the definition of Timer_Status_Periodic in 7.2.3.26.2.
- Modified the SDU number references in 7.2.3.26.5, since the values do not necessarily align with the reception of the STATUS PDUs since the initial phase of the periodic reporting is not necessarily aligned with the first downlink transmission. Keeping this notation in the spec could lead to mis-interpretations.
- Clarified the definition of Timer_Status_Prohibit test.

7.2.3.33

TP Definition: Replace the text in 7.2.3.33.1 by:"This case tests that when the maximum number of retransmissions is exceeded, the UE initiates and performs the RLC Reset procedure. Incorrect operation of this procedure may cause loss of service."

Solution> Replaced TP Definition as suggested.

Test Purpose formulation: Replace item 1 by:"1. To verify that the Reset procedure is initiated when the maximum number of retransmissions has been exceeded (Reset trigger condition 1) in subclause 11.4.2 of 3GPP TS 25.322".

Solution> Replaced as suggested. RAN had an action to investigate this item, but bo input from them so far.

7.2.3.34

TP Definition: In fact there is no unrecoverable protocol error. The UE just has to respond to a Reset procedure initiated by the UTRAN.Replace the text in 7.2.34.1 by:"This case tests that the UE responds correctly to the RLC Reset procedure initiated by the network. Incorrect operation of this procedure may cause loss of

		service." Solution> Replaced as suggested. RAN had an action to investigate this item, but bo input from them so far.
Consequences if not approved:	⌘	The test prose cannot test UE correctly.

Clauses affected:	⌘	7.2.2, 7.2.3				
		Y	**N**			
Other specs affected:	⌘		**X**	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘	Affects R99, R4 and R5 UE 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.

7.2 RLC testing

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.

7.2.2 Unacknowledged mode

7.2.2.1 General information for UM tests

Two generic Radio Access Bearers are provided for UM tests.

The UM test RAB is set up using the Generic Procedure described in clause 7.1.3 of 3GPP TS 34.108, and with the default RAB replaced as follows:

- For UM 7-bit ~~length indicator~~“Length Indicator” tests: the RB configuration described in 3GPP TS 34.108 clause 6.11.1 is used. For these tests, let UM_7_PayloadSize denote the RAB payload size in octets.
- For UM 15-bit ~~length indicator~~“Length Indicator” tests: the RB configuration described in 3GPP TS 34.108 clause 6.11.2 is used. For these tests, let UM_15_PayloadSize denote the RAB payload size in octets.

The UM test RABs are used in all tests with the following exception:

- Tests that explicitly specify a different Radio Bearer configuration.

All other settings are the same.

The special ~~Length Indicator~~“Length Indicator” indicating that an SDU begins in the first octet of a PDU, described in clause 9.2.2.8 in 3GPP TS 25.322 is not used in uplink or downlink except when explicitly stated in the corresponding test case.

7.2.2.2 Segmentation and reassembly / Selection of 7 or 15 bit “Length Indicators”

7.2.2.2.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. “Length ~~i~~Indicators” are added to allow correct reconstruction of SDUs. The selection of the size of the “~~l~~Length ~~i~~Indicator” fields used must follow the specified rules. Incorrect operation of segmentation, concatenation, or coding of “~~l~~Length ~~i~~Indicators” will result in failure of the UE to communicate.

7.2.2.2.2 Conformance requirement

Except for the predefined values reserved for special purposes and listed in TS 25.322 section 9.2.2.8 the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

The size of the Length Indicator may be either 7 bits or 15 bits.

[...]

For UM:

- if the "largest UMD PDU size" is ≤ 125 octets:

    - 7-bit "Length Indicators" shall be used.
  - else:
    - 15-bit "Length Indicators" shall be used.
- between modifications of the "largest UMD PDU size", the size of the "Length Indicator" is the same for all UMD PDUs;~~The size of the Length Indicator may be either 7 bits or 15 bits.~~

~~For UM, 7 bit indicators shall be used if the UMD PDU size is ≤ l25 octets. Otherwise 15bit indicators shall be used.~~

~~The length of the Length Indicator only depends on the size of the largest RLC PDU. The length of the Length Indicator is always the same for all PDUs, for one RLC entity.~~

Reference(s)

TS 25.322 clauses 9.2.2.8 and 9.2.2.9.

7.2.2.2.3 Test purpose

To test that if the size of the largest PDU is ≤ l25 octets, 7 bit indicators are used, otherwise, 15 bit indicators are used.

7.2.2.2.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit ~~l~~”Length ~~i~~Indicator” tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 10 bytes.

Test procedure

a) The SS transmits an RLC SDU of size 10 bytes.

b) The SS checks the ~~l~~”Length ~~i~~Indicator”~~ sizes and~~ values and SDU size and contents in~~of~~ the RLC PDU returned on the uplink (assuming a 7-bit “Length Indicator” size).

c) The SS releases the RB, and performs the Radio Bearer establishment procedure (clause 7.1.3 of TS 34.108) with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit ~~l~~”Length ~~i~~Indicator” tests in clause 7.2.2.1.

All other settings the same.

d) The SS transmits an RLC SDU of size 10 bytes.

e) The SS checks the ~~l~~”Length ~~i~~Indicator”~~ sizes and~~ values and SDU size and contents in~~of~~ the RLC PDU returned on the uplink (assuming a 15-bit “Length Indicator” size).

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures for UM 7 bit LIs
2	←		DOWNLINK RLC PDU	10 byte SDU + padding
3	→		UPLINK RLC PDU	10 byte SDU + padding
4	←		RB RELEASE	
5			RB ESTABLISHMENT	See generic procedures for UM 15 bit LIs (largest UMD PDU size > 125 bytes)
6	←		DOWNLINK RLC PDU	10 byte SDU + padding
7	→		UPLINK RLC PDU	10 byte SDU + padding
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.2.5 Test requirements

1. The UE shall send 7 bit ~~l~~”Length ~~i~~Indicators” with values that correctly indicate the end of the SDU received in step 3.

2. The UE shall send 15 bit ~~l~~”Length ~~i~~Indicators” with values that correctly indicate the end of the SDU received in step 7.

7.2.2.3 Segmentation and reassembly / 7-bit “Length Indicators” / Padding

7.2.2.3.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. “Length ~~i~~Indicators” are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of ~~l~~”Length ~~i~~Indicators” will result in failure of the UE to communicate.

7.2.2.3.2 Conformance requirement

A "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU.

Except for the predefined values reserved for special purposes and listed in the tables below, the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;

- be included in the PDUs that they refer to.

[...]

For UM and AM RLC:

- if a 7 bit "Length Indicator" is used in a RLC PDU and one or more padding octets are present in the RLC PDU after the end of the last RLC SDU:

    - indicate the presence of padding by including a "Length Indicator" with value "1111111" as the last "Length Indicator" in the PDU.

NOTE: After the "Length Indicator" indicating the presence of padding has been included in the RLC PDU, the length of the padding may be zero.

~~A PDU that has unused space, to be referred to as padding, shall use a Length Indicator to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit LIs. A padding Length Indicator must be placed after any Length Indicators for a PDU.~~

~~One length indicator field shall be included for each end of a SDU that the PDU includes. The LI shall be set equal to the number of octets between the end of the header fields and the end of the segment. If padding is needed, another LI field set to only 1's shall be added.~~

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.2.2.1.

7.2.2.3.3 Test purpose

1. To test that the UE correctly segments a large SDU, includes a “Length Indicator” indicating padding in the RLC PDU carrying the last SDU segment, and adds padding at the end.~~To test that the UE correctly segments a large SDU and padding is added at the end.~~
2. To test that the UE correctly deals with a 7-bit padding “Length Indicator” when present in a received PDU.

7.2.2.3.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit ~~l~~”Length ~~i~~Indicator” tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to UM_7_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits an RLC SDU of size UM_7_PayloadSize + 1 bytes. The second of the 2 PDUs sent shall contain a “Length Indicator” indicating the end of the SDU and the~~an~~ “Length Indicator” indicating that padding is present.

b) The SS checks the ~~l~~”Length ~~i~~Indicator” ~~sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit “Length Indicator” size).

c) The SS may optionally release the radio bearer.

Expected sequence

<table>
<tr><th rowspan="2">Step</th><th colspan="2">Direction</th><th rowspan="2">Message</th><th rowspan="2">Comments</th></tr>
<tr><th>UE</th><th>SS</th></tr>
<tr><td>1</td><td colspan="2"></td><td>RB ESTABLISHMENT</td><td>See generic procedures</td></tr>
<tr><td>2</td><td colspan="2">←</td><td>DOWNLINK RLC PDU</td><td>SDU 1</td></tr>
<tr><td>3</td><td colspan="2">←</td><td>DOWNLINK RLC PDU</td><td>SDU 1 & Padding</td></tr>
<tr><td>4</td><td colspan="2">→</td><td>UPLINK RLC PDU</td><td>No LI</td></tr>
<tr><td>5</td><td colspan="2">→</td><td>UPLINK RLC PDU</td><td>Check LIs and re-assembled SDU</td></tr>
<tr><td>6</td><td colspan="2"></td><td>RB RELEASE</td><td>Optional step</td></tr>
<tr><td colspan="5">NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.</td></tr>
</table>

7.2.2.3.5 Test requirements

1. The UE shall return two RLC PDUs. The first shall ~~have no~~not include “Length Indicators”. The second shall have a “Length Indicator” indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate that the remainder of the PDU contains padding.
2. The length and data content of the received SDU ~~should~~ shall be the same as the transmitted SDU.

7.2.2.4 Segmentation and Reassembly / 7-bit “Length Indicators” / LI = 0

7.2.2.4.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. A pre-defined “~~l~~Length ~~i~~Indicator” value is used to indicate when a~~n~~ SDU~~s~~ ends coincident with the end of the previous PDU. Incorrect operation of segmentation, concatenation, or coding of ~~l~~”Length ~~i~~Indicators” will result in failure of the UE to communicate.

7.2.2.4.2 Conformance requirement

A "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU.

Except for the predefined values reserved for special purposes and listed in TS 25.322 subclause 9.2.2.8, the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

[...]

In the case where the end of the last segment of an RLC SDU exactly ends at the end of a PDU and there is no "Length Indicator" that indicates the end of the RLC SDU:

- if 7-bit "Length Indicator" is used:
  - a "Length Indicator" with value "000 0000" shall be placed as the first "Length Indicator" in the following PDU;

[...]

For UM and AM RLC:

- if a 7 bit "Length Indicator" is used in a RLC PDU and one or more padding octets are present in the RLC PDU after the end of the last RLC SDU:
- indicate the presence of padding by including a "Length Indicator" with value "1111111" as the last "Length Indicator" in the PDU.

~~If the PDU is exactly filled with the last segment of a SDU and there is no room for an LI field, an LI field set to only 0's shall be included as the first length indicator in the following PDU.~~

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.2.2.1.

7.2.2.4.3 Test purpose

1. To test that where a~~n~~ SDU exactly fills a PDU, a~~n~~ “Length Indicator” of ~~value zero~~all 0’s is placed by the transmitter as the first “Length Indicator” in the next PDU.
2. To test that where a~~n~~ SDU exactly fills a PDU, the receiver accepts a~~n~~ “Length Indicator” of ~~value of zero~~all 0’s, placed as the first “Length Indicator” in the next PDU.

7.2.2.4.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit ~~l~~”Length ~~i~~Indicator” tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_7_PayloadSize bytes.

Test procedure

a) The SS transmits an RLC SDU of size 2 * UM_7_PayloadSize bytes.

b) The SS checks the ~~l~~”Length ~~i~~Indicator”~~ sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit “Length Indicator” size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1
3	←	DOWNLINK RLC PDU	SDU 1
4	←	DOWNLINK RLC PDU	LI=0 and padding
5	→	UPLINK RLC PDU	No LI~~i~~s
6	→	UPLINK RLC PDU	Check Lis and re-assembled SDU
7		RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.			

7.2.2.4.5 Test requirements

The UE shall return two RLC PDUs. The first shall ~~have~~ not include “Length Indicators”. The second shall have a~~n~~ “Length Indicator” indicating that the SDU exactly filled the previous UMD PDU, and a~~n~~ “Length Indicator” indicating that the remainder of the PDU contains padding.

The length of the received SDU ~~should~~ shall be UM_7_PayloadSize bytes, and the data content shall be the same as the first UM_7_PayloadSize bytes of the transmitted SDU.

7.2.2.5 Reassembly / 7-bit “Length Indicators” / Invalid LI value

7.2.2.5.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. “Length indicators” are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid “Length Indicator” value has been specified. Incorrect operation of segmentation, concatenation, or coding of ~~l~~”Length ~~i~~Indicators” will result in failure of the UE to communicate.

7.2.2.5.2 Conformance requirement

Upon delivery by the lower layer of an UMD PDU that contains a "Length Indicator" value specified to be reserved for UMD PDUs in this version of the protocol, the Receiver shall:

- ignore that UMD PDU.

[...]

Length: 7 bits

Bit	**Description**
1111101	Reserved (PDUs with this coding will be discarded by this version of the protocol).
1111110	AMD PDU: The rest of the RLC PDU includes a piggybacked STATUS PDU. UMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).

~~Upon reception of an UMD PDU that contains Length Indicator value 1111110 ("piggybacked STATUS PDU") the receiver shall discard that UMD PDU.~~

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.2.4.1.

7.2.2.5.3 Test purpose

To test that PDUs with invalid “Length indicator” '111 1110' are discarded by the receiving RLC.~~To test that PDUs with invalid length indicators are discarded by the receiving RLC.~~

7.2.2.5.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit ~~l~~”Length ~~i~~Indicator” tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1with the UL SDU size set to UM_7_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits two RLC SDUs of size UM_7_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 1111110.

b) The SS checks the ~~l~~”Length ~~i~~Indicator” sizes and values of any RLC PDUs returned on the uplink, and checks for the presence of any received RLC SDUs.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 and invalid LI (=11111110)
5	→		UPLINK RLC PDU	SDU 1
6	→		UPLINK RLC PDU	SDU 1: Check LI~~i~~s and re-assembled SDU
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.5.5 Test requirements

The UE shall return two RLC PDUs. The first shall ~~have~~ not include any “Length Indicators”. The second shall have a “Length Indicator” indicating the end of the SDU, and a padding “Length Indicator”.

The length and data content of the received SDU ~~should~~ shall be the same as the first transmitted SDU. The second SDU ~~should~~ shall not be returned.

7.2.2.6 Reassembly / 7-bit “Length Indicators” / LI value > PDU size

7.2.2.6.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. “Length ~~i~~Indicators” are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid “Length Indicator” value has been specified. Incorrect operation of segmentation, concatenation, or coding of ~~l~~”Length ~~i~~Indicators” will result in failure of the UE to communicate.

7.2.2.6.2 Conformance requirement

If the "Length Indicator" of an UMD PDU has a value that is larger than the PDU size – RLC header size and is not one of the predefined values listed in the table of TS 25.322 subclause 9.2.2.8, the Receiver shall:

- ignore the UMD PDU.

[...]

Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall:

- update VR(US) according to each received UMD PDU (see TS 25.322 subclause 9.4);
- if the updating step of VR(US) is not equal to one (i.e. one or more UMD PDUs are missing):
  - discard the SDUs that have segments in the missing UMD PDUs.

~~If the length indicator of a PDU has a value that is larger than the PDU size – the number of octets containing LIs in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.~~

~~If a PDU with sequence number < VR(US) is missing then all SDUs that have segments in this PDU shall be discarded.~~

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2.6.3 Test purpose

To test that PDUs with ~~l~~”Length ~~i~~Indicators” that point beyond the end of the PDU are ~~discarded~~ignored by the receiving RLC entity.

7.2.2.6.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit ~~l~~”Length ~~i~~Indicator” tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_7_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits three RLC SDUs of size UM 7 PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the ~~l~~”Length ~~i~~Indicator” to be UM_7_PayloadSize (decimal).

b) The SS checks the “Length Indicator”~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDUs (assuming a 7-bit “Length Indicator” size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU	SDU 3 and padding
6	→		UPLINK RLC PDU	SDU 1
7	→		UPLINK RLC PDU	SDU 1 and padding: Check LI~~i~~s and re-assembled SDU
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.6.5 Test requirements

The UE shall return two RLC PDUs. The first shall ~~have~~ not include “Length Indicators. The second shall have a LI indicating the end of an SDU and an “Length Indicator” indicating that the remainder of the PDU contains padding.

The length and data content of the received SDU should be the same as the first transmitted SDU. No further SDUs or PDUs should be received.

7.2.2.7 Reassembly / 7-bit “Length Indicators” / First data octet LI

7.2.2.7.1 Definition

The RLC segments and concatenates SDUs into UMD PDUs according to the PDU size requested by MAC. “Length ~~i~~Indicators” are added to allow correct reconstruction of SDUs. A special ~~LI~~“Length Indicator” is defined to indicate that the start of an SDU is coincident with the start of the PDU. The special ~~LI~~“Length Indicator” is needed to avoid discarding of an SDU when the first received PDU has a sequence number different from zero. Incorrect operation of segmentation, concatenation, or coding of “Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.2.7.2 Conformance requirement

1. “Length Indicator”~~LI~~ = 1111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.

2. Upon delivery of a set of UMD PDUs from the lower layer, the Receiver shall:

   ...

   - if the special "Length Indicator" "1111 100" or "1111 1111 1111 100" is the first "Length Indicator" of a UMD PDU received on the downlink:
     - consider the first data octet in this UMD PDU as the first octet of an RLC SDU.

Reference(s)

1. TS 25.322 clause 9.2.2.8.
2. TS 25.322 clause 11.2.3.

7.2.2.7.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 7-bit “Length Indicator”~~length indicator~~ having its value equal to the special “Length Indicator”~~length indicator~~ value 1111100 when the sequence number of the first received PDU is different from zero.

7.2.2.7.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 7-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 12 bytes.

Test procedure

a) The SS transmits a RLC SDU of size 12 bytes in a PDU which has the ‘First Data Octet LI’ as the first “Length Indicator”~~LI~~ in the PDU.

b) The SS waits until the SDU has been received back from the UE, and then transmits another SDU of 12 bytes in a PDU which has the ‘First Data Octet LI’ as the first “Length Indicator”~~LI~~ in the PDU.

c) The SS waits until this SDU has been received back from the UE.

c) The SS may optionally release the radio bearer.

Note: The SS sends PDUs in downlink starting at sequence number 10.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU, SN 10	SDU 1 with LI = 1111100
3			…	Wait for loopback
4	→		UPLINK RLC PDU	SDU 1
5	←		DOWNLINK RLC PDU, SN 11	SDU 2 with LI = 1111100
6	→		UPLINK RLC PDU	SDU 2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

~~Note: The SS sends PDUs in downlink starting at sequence number 10.~~

7.2.2.7.5 Test requirements

1. The UE shall return two RLC PDUs.
2. The length and data content of each received SDU ~~should~~ shall be the same as the transmitted SDU.

7.2.2.8 Segmentation and reassembly / 15-bit “Length Indicators” / Padding

7.2.2.8.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. “Length Indicators”~~Length indicators~~ are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of “Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.2.8.2 Conformance requirement

A PDU that has unused space, to be referred to as padding, shall use a “Length Indicator”~~Length Indicator~~ to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit “Length Indicators”~~LIs~~. A padding “Length Indicator”~~Length Indicator~~ must be placed after any “Length Indicators”~~Length Indicators~~ for a PDU.

One ~~length indicator~~“Length Indicator” field shall be included for each end of a SDU that the PDU includes. The “Length Indicator”~~LI~~ shall be set equal to the number of octets between the end of the header fields and the end of the segment. If padding is needed, another “Length Indicator”~~LI~~ field set to only 1's shall be added unless the padding size is one octet for PDUs with 15-bit “Length Indicators”~~LIs~~.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.2.2.1.

7.2.2.8.3 Test purpose

1. To test that the UE correctly segments a large SDU and padding is added at the end.
2. To test that the UE correctly deals with a 15-bit padding “Length Indicator”~~LI~~ when present in a received PDU.

7.2.2.8.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to UM_15_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits an RLC SDU of size UM_15_PayloadSize + 1 bytes. The second of the 2 PDUs sent shall contain a~~n~~ “Length Indicator” indicating the end of the SDU and the “Length Indicator”~~LI~~ indicating that padding is present.

b) The SS checks the “Length Indicator”~~length indicator sizes and~~ values ~~of~~in the RLC PDU returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit “Length Indicator” size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & Padding
4	→		UPLINK RLC PDU	No LI
5	→		UPLINK RLC PDU	Check LIs and re-assembled SDU
6			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.8.5 Test requirements

1. The UE shall return two RLC PDUs. The first shall ~~have ~~not include “Length Indicators”~~LIs~~. The second shall have a “Length Indicator”~~LI~~ indicating the PDU contains a~~n~~ SDU boundary after octet 1 of the data field, and the second shall indicate that the remainder of the PDU contains padding.

2. The length and data content of the received SDU ~~should ~~shall be the same as the transmitted SDU.

7.2.2.9 Segmentation and Reassembly / 15-bit “Length Indicators” / LI = 0

7.2.2.9.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. A pre-defined “Length Indicator”~~length indicator~~ value is used to indicate when an SDUs ends coincident with the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of “Length Indicator”~~length indicators~~ will result in failure of the UE to communicate.

7.2.2.9.2 Conformance requirement

If the PDU is exactly filled with the last segment of a SDU and there is no room for an “Length Indicator”~~LI~~ field, a~~n~~ “Length Indicator”~~LI~~ field set to ~~only~~all 0's shall be included as the first “Length Indicator”~~length indicator~~ in the following PDU.

Reference(s)

TS 25.322 clause 11.2.2.1.

7.2.2.9.3 Test purpose

1. To test that where a~~n~~ SDU exactly fills a PDU, a~~n~~ “Length Indicator”~~LI~~ of all 0’s~~value zero~~ is placed by the transmitter as the first “Length Indicator”~~LI~~ in the next PDU.

2. To test that where an SDU exactly fills a PDU, and an “Length Indicator”~~LI~~ of all 0’s~~value zero~~ is the first “Length Indicator”~~LI~~ in the next PDU, the receiver correctly reassembles the PDU.

7.2.2.9.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_15_PayloadSize bytes.

Test procedure

a) The SS transmits an RLC SDU of size 2 * UM_15_PayloadSize bytes.

b) The SS checks the "Length Indicator"~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0 and padding
5	→		UPLINK RLC PDU	No Lis
6	→		UPLINK RLC PDU	Check LI~~i~~s and re-assembled SDU
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.9.5 Test requirements

The UE shall return two RLC PDUs. The first shall ~~have~~ not include "Length Indicators"~~LIs~~. The second shall have an "Length Indicator"~~LI~~ indicating that the SDU exactly filled the previous UMD PDU, and a~~n~~ "Length Indicator"~~LI~~ indicating that the remainder of the PDU contains padding.

The length of the received SDU ~~should~~ shall be UM_15_PayloadSize bytes, and the data content shall be the same as the first UM_15_PayloadSize bytes of the transmitted SDU.

7.2.2.10 Segmentation and reassembly / 15-bit "Length Indicators" / One octet short LI

7.2.2.10.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. A pre-defined "Length Indicator"~~length indicator~~ value is used to indicate when an SDUs ends one octet short of the end of the previous PDU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators"~~length indicators~~ will result in failure of the UE to communicate.

7.2.2.10.2 Conformance requirement

In the case where the last segment of an RLC SDU is one octet short of exactly filling the last RLC PDU, and 15-bit "Length Indicators"~~Length Indicators~~ are used, the next "Length Indicator"~~Length Indicator~~ shall be placed as the first "Length Indicator"~~Length Indicator~~ in the next PDU and have value "Length Indicator"~~LI~~=111 1111 1111 1011.

In the case where a PDU contains a 15-bit "Length Indicator"~~LI~~ indicating that an SDU ends with one octet left in the PDU, the last octet of this PDU shall be ignored and shall not be filled with the first octet of the next SDU data.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2.10.3 Test purpose

1. To test that where the UE transmits an SDU, which is one byte short of filling a PDU, an "Length Indicator"~~LI~~ indicating one byte short is placed as the first "Length Indicator"~~LI~~ in the next PDU.

2. To test that where the UE correctly handles a received PDU containing an “Length Indicator”~~LI~~ indicating that an SDU ended one byte short of the end of the previous PDU.

7.2.2.10.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to UM_15_PayloadSize - 1bytes.

Test procedure

a) The SS transmits an RLC SDU of size (2 * UM_15_PayloadSize) - 1 bytes.

b) The SS checks the “Length Indicator”~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit “Length Indicator” size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=111 1111 1111 1011 and padding
5	→		UPLINK RLC PDU	No LIs
6	→		UPLINK RLC PDU	Check LIs and re-assembled SDU
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.10.5 Test requirements

1. The UE shall return two RLC PDUs. The first shall have no ~~LIs~~”Length Indicators”. The second shall have 2 ”Length Indicators”~~LIs~~. The first ”Length Indicator”~~LI~~ shall be a~~n~~ ”Length Indicator”~~LI~~ indicating that the SDU was one byte short of filling the previous PDU, and the second shall be a~~n~~ ”Length Indicator”~~LI~~ indicating that the remainder of the PDU contains padding.

2. The length of the received SDU ~~should~~ shall be UM_15_PayloadSize - 1bytes, and the data content shall be the same as the first UM_15_PayloadSize - 1 bytes of the transmitted SDU.

7.2.2.11 Reassembly / 15-bit “Length Indicators” / Invalid LI value

7.2.2.11.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. ”Length Indicators”~~Length indicators~~ are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid ”Length Indicator”~~LI~~ value has been specified. Incorrect operation of segmentation, concatenation, or coding of ”Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.2.11.2 Conformance requirement

Upon reception of an UMD PDU that contains “Length Indicator” value 111111111111110 ("piggybacked STATUS PDU") the receiver shall discard that UMD PDU.

Reference(s)

TS 25.322 clause 11.2.4.1.

7.2.2.11.3 Test purpose

To test that PDUs with invalid ”Length Indicators”~~length indicators~~ are discarded by the receiving RLC.

7.2.2.11.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit ”Length Indicator”~~length indicator~~ tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_15_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits two RLC SDUs of size UM_15_PayloadSize + 1 bytes. In the third PDU for transmission, the SS sets the value of the second (padding) LI to 111111111111110.

b) The SS checks the ”Length Indicator”~~length indicator~~ sizes and values of any RLC PDUs returned on the uplink, and checks for the presence of any received RLC SDUs.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 and invalid LI (=111111111111110)
5	→		UPLINK RLC PDU	SDU 1
6	→		UPLINK RLC PDU	SDU 1: Check LI~~i~~s and re-assembled SDU
7			RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

7.2.2.11.5 Test requirements

The UE shall return two RLC PDUs. The first shall ~~have~~ not include any ”Length Indicators”~~LIs~~. The second shall have a ”Length Indicator”~~LI~~ indicating the end of the SDU, and a padding ”Length Indicator”~~LI~~.

The length and data content of the received SDU ~~should~~ shall be the same as the first transmitted SDU. The second SDU ~~should~~ shall not be returned.

7.2.2.12 Reassembly / 15-bit "Length Indicators" / LI value > PDU size

7.2.2.12.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. "Length indicators" are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid "Length Indicator"~~LI~~ value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators"~~length indicators~~ will result in failure of the UE to communicate.

7.2.2.12.2 Conformance requirement

If the "Length Indicator"~~length indicator~~ of a PDU has a value that is larger than the PDU size – the number of octets containing "Length Indicators"~~LIs~~ in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

If a PDU with sequence number < VR(US) is missing then all SDUs that have segments in this PDU shall be discarded.

Reference(s)

TS 25.322 clauses 11.2.4.2 and 11.2.3.

7.2.2.12.3 Test purpose

To test that PDUs with "Length Indicators"~~length indicators~~ that point beyond the end of the PDU are ~~discarded~~ignored by the receiving RLC entity.

7.2.2.12.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit "Length Indicator"~~length indicator~~ tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into loop-back mode 1 with the UL SDU size set to UM_15_PayloadSize + 1bytes.

Test procedure

a) The SS transmits three RLC SDUs of size UM_15_PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator"~~length indicator~~ to be UM_15_PayloadSize + 1 (decimal).

b) The SS checks the "Length Indicator"~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDUs (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU	SDU 3 and padding
6	→		UPLINK RLC PDU	SDU 1
7	→		UPLINK RLC PDU	SDU 1 and padding: Check LI~~i~~s and re-assembled SDU
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.12.5 Test requirements

The UE shall return two RLC PDUs. The first shall~~ have~~ not include any “Length Indicators”~~LIs~~. The second shall have a “Length Indicator”~~LI~~ indicating the end of an SDU and an “Length Indicator”~~LI~~ indicating that the remainder of the PDU contains padding.

The length and data content of the received SDU ~~should~~ shall be the same as the first transmitted SDU. No further SDUs or PDUs ~~should~~ shall be received.

7.2.2.13 Reassembly / 15-bit “Length Indicators” / First data octet LI

7.2.2.13.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~UMD PDUs according to the ~~payload unit~~PDU size requested by MAC. “Length Indicators”~~Length indicators~~ are added to allow correct reconstruction of SDUs. A special LI is defined to indicate that the start of on SDU is coincident with the start of the PDU. The special LI is needed to avoid discarding of an SDU when the first received PDU has a sequence number different from zero. Incorrect operation of segmentation, concatenation, or coding of “Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.2.13.2 Conformance requirement

“Length Indicators”~~LI~~ = 111111111111100, UMD PDU: The first data octet in this RLC PDU is the first octet of a RLC SDU.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.2.13.3 Test purpose

To test that a UE in unacknowledged mode correctly handles a received RLC PDU with a 15-bit “Length Indicator”~~length indicator~~ having its value equal to the special ~~length indicator~~LI value 111111111111100 when the sequence number of the first received PDU is different from zero..

7.2.2.13.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for UM 15-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.2.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 150 bytes.

Test procedure

a) The SS transmits a RLC SDU of size 150 bytes in a PDU which has the ‘First Data Octet LI’ as the first “Length Indicator”~~LI~~ in the PDU.

b) The SS waits until the SDU has been received back from the UE, and then transmits another SDU of 150 bytes in a PDU which has the ‘First Data Octet LI’ as the first “Length Indicator”~~LI~~ in the PDU.

c) The SS waits until this SDU has been received back from the UE.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1 with LI = 111111111111100
3			…	Wait for loopback
4	→		UPLINK RLC PDU	SDU 1
5	←		DOWNLINK RLC PDU	SDU 2 with LI = 111111111111100
6	→		UPLINK RLC PDU	SDU 2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.2.13.5 Test requirements

1. The UE shall return two RLC PDUs.
2. The length and data content of each received SDU ~~should~~ shall be the same as the transmitted SDU.

7.2.3 Acknowledged mode

7.2.3.1 General information for AM tests

Two generic Radio Access Bearers are provided for AM tests.

The AM test RAB is set up using the Generic Procedure described in clause 7.1.3 of TS 34.108, and with the default RAB replaced as follows:

- For AM 7-bit ~~length indicator~~“Length Indicator” tests: the RB configuration described in 3G TS 34.108 clause 6.11.3 is used. For these tests, let AM_7_PayloadSize denote the RAB payload size in octets.
- For AM 15-bit ~~length indicator~~“Length Indicator” tests: the RB configuration described in 3G TS 34.108 clause 6.11.4 is used. For these tests, let AM_15_PayloadSize denote the RAB payload size in octets.

Unless specified in individual test cases, the default RLC settings are given in table 7.2/1.

Table 7.2/1: RLC Parameters for AM testing

Uplink RLC	
Transmission RLC discard	
Max DAT retransmissions	
Max_DAT	4
Transmission window size	128
Timer_RST	500
Max_RST	4
Polling info	
Timer_poll_prohibit	Disabled
Timer_poll	Disabled
Poll_PU	Disabled
Poll_SDU	Disabled
Last transmission PDU poll	TRUE
Last retransmission PDU poll	TRUE
Poll_Window	Disabled
Timer_poll_periodic	Disabled
Downlink RLC	
In-sequence delivery	TRUE
Receiving window size	128
Timer_Status_Prohibit	Disabled
Timer_EPC	Disabled
Missing PDU Indicator	TRUE
Timer_STATUS_periodic	Disabled

The AM test RABs are used in all tests with the following exception:

- Tests that explicitly specify a different Radio Bearer configuration.

All other settings are the same.

7.2.3.2 Segmentation and reassembly / Selection of 7 or 15 bit “Length Indicators”

7.2.3.2.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~PDUs according to the ~~payload unit~~PDU size configured by RRC. “Length ~~i~~Indicators” are added to allow correct reconstruction of SDUs. The selection of the size of the ~~length indicator~~“Length Indicator” fields used must follow the specified rules. Incorrect operation of segmentation, concatenation, or coding of “Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.3.2.2 Conformance requirement

Except for the predefined values reserved for special purposes and listed in TS 25.322 section 9.2.2.8 the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

[...]

The size of the Length Indicator may be either 7 bits or 15 bits.

[...]

For AM:

- if the "AMD PDU size" is ≤ 126 octets:
    - 7-bit "Length Indicators" shall be used.

- else:
  - 15-bit "Length Indicators" shall be used.
- the size of the "Length Indicator" is always the same for all AMD PDUs, for one RLC entity.

~~The size of the Length Indicator may be either 7 bits or 15 bits.~~

~~For AM, 7bit indicators shall be used if the AMD PDU size is ≤ 126 octets. Otherwise 15bit indicators shall be used.~~

~~The length of the Length Indicator only depends on the size of the largest RLC PDU. The length of the Length Indicator is always the same for all PUs, for one RLC entity.~~

Reference(s)

TS 25.322 clauses 9.2.2.8 and 9.2.2.9.

7.2.3.2.3 Test purpose

To test that if the configured AMD PDU size is ≤ 126 octets, 7 bit "Length Indicators" are used in transmitted AMD PDUs, otherwise, 15 bit "Length Indicators" are used~~To test that if PDU carries a single PDU, and the size of the largest PDU is ≤ 126 octets, 7 bit indicators are used, otherwise, 15 bit indicators are used.~~

7.2.3.2.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator"~~length indicator~~ tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to 10 bytes.

Test procedure

a) The SS transmits an RLC SDU of size 10 bytes. The PDU carrying this SDU is transmitted with a poll for status.

b) The SS checks the "Length Indicator"~~length indicator sizes and~~ values ~~of~~and SDU size and contents in the RLC PDU returned on the uplink (assuming a 7-bit "Length Indicator" size).

c) The SS releases the RB, and performs the Radio Bearer establishment procedure (clause 7.1.3 of TS 34.108) with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator"~~length indicator~~ tests in clause 7.2.3.1.

All other settings the same.

d) The SS transmits an RLC SDUs of size 10 bytes. The PDU carrying this SDU is transmitted with a poll for status.

e) The SS checks the "Length Indicator"~~length indicator sizes and~~ values ~~of~~ and SDU size and contents in the RLC PDU returned on the uplink (assuming a 15-bit "Length Indicator" size).

f) The SS may optionally release the radio bearer.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures for AM 7 bit LIs
2	←		DOWNLINK RLC PDU	10 byte SDU + padding + poll
3	→		UPLINK RLC PDU	10 byte SDU + piggy-backed status + poll
3a	→		*STATUS PDU*	*If piggy-backed status is not used in 3*
4	←		STATUS PDU	
5	←		RB RELEASE	
6			RB ESTABLISHMENT	See generic procedures for AM ~~7~~15 bit LIs (AMD PDU size > 126 bytes)
7	←		DOWNLINK RLC PDU	10 byte SDU + padding + poll
8	→		UPLINK RLC PDU	10 byte SDU + piggy-backed status + poll
8a	→		*STATUS PDU*	*If piggy-backed status is not used in 7*
9	←		STATUS PDU	
10			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.2.5 Test requirements

The UE shall send 7 bit “Length Indicators”~~length indicators~~ with values that correctly indicate the end of SDU in step b).

The UE shall send 15 bit “Length Indicators”~~length indicators~~ with values that correctly indicate the end of SDU in step e).

7.2.3.3 Segmentation and Reassembly / 7-bit “Length Indicators” / Padding or Piggy-backed Status

7.2.3.3.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~AMD PDUs according to the ~~payload unit~~PDU size configured by RRC. “Length Indicators”~~Length indicators~~ are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of length indicators will result in failure of the UE to communicate.

7.2.3.3.2 Conformance requirement

A "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU.

Except for the predefined values reserved for special purposes and listed in the tables below, the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

~~The Length Indicator is used to indicate, each time, the end of an SDU occurs in the PU. The Length Indicator points out the number of octets between the end of the last Length Indicator field and up to and including the octet at the end of an SDU segment~~

Predefined values of the "Length Indicator" are used to indicate padding. The values that are reserved for special purposes are listed in the tables below depending on the size of the "Length Indicator". Only predefined "Length Indicator" values can refer to the padding space. These values shall only be placed after all other "Length Indicators" for a PDU.

STATUS PDUs can be piggybacked on the AMD PDU by using part or all of the padding space. A predefined "Length Indicator" shall be used to indicate the presence of a piggybacked STATUS PDU. This "Length Indicator" replaces the padding "Length Indicator". The piggybacked STATUS PDU shall be appended immediately following the PDU data.

When only part of the padding space is used, the end of the piggybacked STATUS PDU is indicated by one of the SUFI fields NO_MORE or ACK. Thus no additional "Length Indicator" is required to show that there is still padding in the AMD PDU.~~A PDU that has unused space, to be referred to as padding, shall use a Length Indicator to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit LIs. A padding Length Indicator must be placed after any Length Indicators for a PDU.~~

[…]

Sender shall:

- when RLC SDUs are received from upper layers:
  - segment the RLC SDUs into AMD PDUs where the fixed PDU size is configured by upper layer;
  - set a "Length Indicator" field for each SDU that ends in the AMD PDU according to subclause 9.2.2.8;

[…]

~~Upon reception of a SDU, RLC shall segment the SDU to fit into the fixed size of a PU. The segments are inserted in the data field of a PU. A length indicator shall be added to each PDU that includes a border of an SDU, i.e. if a PDU does not contain an LI, the SDU continues in the next PU. The length indicator indicates where the border occurs in the PU. The data after the indicated border can be either a new SDU, padding or piggybacked information. If padding or piggybacking is added another LI shall be added unless the padding size is one octet for PDUs with 15-bit LIs, see clauses 9.2.2.8 and 9.2.2.9.~~

The Receiver may:

- if STATUS PDU(s) to be sent fit into padding octets in AMD PDU(s) to be sent:
  - piggyback a STATUS PDU on the AMD PDU to be sent.

Submission of a piggybacked STATUS PDU in an AMD PDU to the lower layer follows the same rules as an ordinary STATUS PDU.

Reference(s)

TS 25.322 clauses 9.2.2.8, 11.3.2 and ~~11.3.2.1.2.~~11.5.2.1.

7.2.3.3.3 Test purpose

1. To test that a large SDU is correctly segmented and padding added at the end.
2. To test that a large SDU is received correctly, whether or not it has piggy-backed status at the end.

7.2.3.3.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize + 1 bytes.

Test procedure

a) The SS transmits an RLC SDU (SDU1) of size AM_7_PayloadSize + 1bytes, and polls the receiver for status.

b) The SS checks the “Length Indicator”~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit “Length Indicator” size).

c) The SS transmits another RLC SDU (SDU2) of size AM_7_PayloadSize + 1 bytes, and includes piggy-backed status in the second of the 2 PDUs sent. The SS also polls the receiver for status.

d) The SS checks the "Length Indicator"~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit "Length Indicator" size).

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 +poll + Padding
4	→		UPLINK RLC PDU	No LI
5	→		UPLINK RLC PDU	Poll, Check LIs and re-assembled SDU
5a	→		*STATUS PDU*	*If piggy-backed status is not used in 5*
6	←		DOWNLINK RLC PDU	SDU 2
7	←		DOWNLINK RLC PDU	SDU 2 + poll + piggy-backed status
8	→		UPLINK RLC PDU	No LI
9	→		UPLINK RLC PDU	Poll, Check LIs and re-assembled SDU
9a	→		*STATUS PDU*	*If piggy-backed status is not used in 9*
10	←		STATUS PDU	
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.3.5 Test requirements

1. In steps 4 and 5, the UE shall return two RLC PDUs. The first shall have no "Length Indicators"~~LIs~~. The second shall have a "Length Indicator"~~LI~~ indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

2. In steps 8 and 9, the UE shall return two RLC PDUs. The first shall have no "Length Indicators"~~LIs~~. The second shall have a "Length Indicator"~~LI~~ indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

3. The length and data content of all received SDUs shall be the same as the transmitted SDUs.

7.2.3.4 Segmentation and Reassembly / 7-bit "Length Indicators" / LI = 0

7.2.3.4.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~AMD PDUs according to the ~~payload unit~~PDU size configured by RRC. A pre-defined "Length Indicator"~~length indicator~~ value is used to indicate when an SDUs ends coincident with the end of the previous PDU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators"~~length indicators~~ will result in failure of the UE to communicate.

7.2.3.4.2 Conformance requirement

Except for the predefined values reserved for special purposes and listed in TS 25.322 section 9.2.2.8 the "Length Indicator" shall:

- be set to the number of octets between the end of the RLC header and up to and including the last octet of an RLC SDU segment;
- be included in the PDUs that they refer to.

[...]

In the case where the end of the last segment of an RLC SDU exactly ends at the end of a PDU and there is no "Length Indicator" that indicates the end of the RLC SDU:

- if 7-bit "Length Indicator" is used:
    - a "Length Indicator" with value "000 0000" shall be placed as the first "Length Indicator" in the following PDU;

[...]

For UM and AM RLC:

- if a 7 bit "Length Indicator" is used in a RLC PDU and one or more padding octets are present in the RLC PDU after the end of the last RLC SDU:
- indicate the presence of padding by including a "Length Indicator" with value "1111111" as the last "Length Indicator" in the PDU.

[...]

STATUS PDUs can be piggybacked on the AMD PDU by using part or all of the padding space. A predefined "Length Indicator" shall be used to indicate the presence of a piggybacked STATUS PDU. This "Length Indicator" replaces the padding "Length Indicator". The piggybacked STATUS PDU shall be appended immediately following the PDU data. When only part of the padding space is used, the end of the piggybacked STATUS PDU is indicated by one of the SUFI fields NO_MORE or ACK. Thus no additional "Length Indicator" is required to show that there is still padding in the AMD PDU

~~If the PDU is exactly filled with the last segment of a SDU and there is no room for an LI field, an LI field set to only 0's shall be included as the first length indicator in the following PDU.~~

Reference(s)

TS 25.322 clause 9.2.2.8 and 11.3.2.1.

7.2.3.4.3 Test purpose

1. To test that where an SDU exactly fills a PDU, an “Length Indicator”~~LI~~ of all 0’s~~value zero~~ is placed by the transmitter as the first “Length Indicator”~~LI~~ in the next PDU.
2. To test that where an SDU exactly fills a PDU, and an “Length Indicator”~~LI~~ of all 0’s~~value zero~~ is the first “Length Indicator”~~LI~~ in the next PDU, the receiver correctly reassembles the SDU.

7.2.3.4.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize bytes.

Test procedure

a) The SS transmits an RLC SDU of size 2 * AM_7_PayloadSize bytes. The SS polls the receiver for status in the last RLC PDU sent.

b) The SS checks the “Length Indicator”~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 7-bit “Length Indicator” size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0, poll and padding
5	→		UPLINK RLC PDU	No Lis
6	→		UPLINK RLC PDU	(Poll) Check Lis and re-assembled SDU
6a	→		*STATUS PDU*	*If piggy-backed status is not used in 6*
7	←		STATUS PDU	
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.4.5 Test requirements

The UE shall return two RLC PDUs. The first shall ~~have~~ not include any “Length Indicators”~~LIs~~. The second shall have a~~n~~ “Length Indicator”~~LI~~ indicating that the SDU exactly filled the previous PDU, and a~~n~~ “Length Indicator”~~LI~~ indicating either that the remainder of the PDU contains padding, or that it contains a piggy-backed STATUS PDU.

The length of the received SDU ~~should~~ shall be AM_7_PayloadSize bytes, and the data content shall be the same as the first AM_7_PayloadSize bytes of the transmitted SDU.

7.2.3.5 Reassembly / 7-bit “Length Indicators” / Reserved LI value

7.2.3.5.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. “Length Indicators”~~Length indicators~~ are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of a reserved “Length Indicator”~~LI~~ value is specified in the conformance requirement below. Incorrect operation of segmentation, concatenation, or coding of “Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.3.5.2 Conformance requirement

Upon delivery by the lower layer of an AMD PDU that contains a "Length Indicator" value specified to be reserved for AMD PDUs in this version of the protocol, the Receiver shall:

- ignore that AMD PDU.

[...]

Length: 7 bits

~~A "Length Indicator" is used to indicate the last octet of each RLC SDU ending within the PDU.~~

~~Except for the predefined values reserved for special purposes and listed in the tables below, the "Length Indicator" shall:~~

~~…~~

~~Length: 7 bits~~

Bit	Description
1111100	UMD PDU: The first data octet in this RLC PDU is the first octet of an RLC SDU. AMD PDU: Reserved (PDUs with this coding will be discarded by this version of the protocol).
1111101	Reserved (PDUs with this coding will be discarded by this version of the protocol).

Reference(s)

TS 25.322 clause 9.2.2.8~~.~~ and 11.3.4.6.

7.2.3.5.3 Test purpose

To test that PDUs with reserved "Length Indicators"~~length indicators~~ are discarded by the receiving RLC.

7.2.3.5.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit "Length Indicator"~~length indicator~~ tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Missing PDU Indicator	FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits three concatenated RLC SDUs of size AM_7_PayloadSize + 1 bytes. In the second PDU, the SS sets the value of the first "Length Indicator"~~LI~~ to correctly indicate the end of SDU1 and adds a second erroneous "Length Indicator"~~LI~~ with value 1111100. In the third PDU for transmission, the SS sets the value of the "Length Indicator"~~LI~~ to 1111101.

b) The SS waits to receive a status report from the UE.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 + SDU 2, good LI, LI = 1111100
4	←		DOWNLINK RLC PDU #2	SDU 2 + SDU 3, LI = 1111101
5	←		DOWNLINK RLC PDU #3	SDU 3 + poll
6	→		STATUS PDU	Nack PDUs 1 and 2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.5.5 Test requirements

1. The UE shall return a STATUS PDU indicating that PDUs with sequence numbers 1 and 2 were not received.

7.2.3.6 Reassembly / 7-bit “Length Indicators” / LI value > PDU size

7.2.3.6.1 Definition

The RLC segments and concatenates SDUs into AMD PDUs according to the PDU size configured by RRC. “Length Indicators”~~Length indicators~~ are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid “Length Indicator”~~LI~~ value where the value is too large is specified in the conformance requirement below. Incorrect operation of segmentation, concatenation, or coding of “Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.3.6.2 Conformance requirement

If the "Length Indicator" of an AMD PDU has a value that is larger than the PDU size – RLC header size and is not one of the predefined values listed in the table of subclause 9.2.2.8, the Sender shall:

- ignore that AMD PDU.~~ discard that AMD PDU; and~~
- ~~treat the discarded AMD PDU as missing.~~

Reference(s)

TS 25.322 clause 11.3.4.5.

7.2.3.6.3 Test purpose

To test that PDUs with “Length Indicators”~~length indicators~~ that point beyond the end of the PDU are discarded by the receiving RLC.

7.2.3.6.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Missing PDU Indicator	FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits three RLC SDUs of size AM_7_PayloadSize + 1bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the “Length Indicator”~~length indicator~~ to be AM_7_PayloadSize (decimal).

b) The SS checks the “Length Indicator”~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the content of the received STATUS PDU (assuming a 7-bit “Length Indicator” size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU #2	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU #3	SDU 3, poll and padding
6	→		STATUS PDU	Nack PDU #2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.6.5 Test requirements

The UE shall return a STATUS PDU indicating ~~indicate~~ that the PDU with sequence number 2 was not received.

7.2.3.7 Segmentation and Reassembly / 15-bit “Length Indicators” / Padding or Piggy-backed Status

7.2.3.7.1 Definition

The RLC segments and concatenates SDUs into ~~payload unit~~AMD PDUs according to the ~~payload unit~~PDU size configured by RRC. “Length ~~i~~Indicators” are added to allow correct reconstruction of SDUs. Incorrect operation of segmentation, concatenation, or coding of “L~~l~~ength ~~i~~Indicators” will result in failure of the UE to communicate.

7.2.3.7.2 Conformance requirement

The “Length Indicator” is used to indicate, each time, the end of an SDU occurs in the PU. The “Length Indicator” points out the number of octets between the end of the last “Length Indicator” field and up to and including the octet at the end of an SDU segment

A PDU that has unused space, to be referred to as padding, shall use a “Length Indicator” to indicate that this space is used as padding unless the padding size is one octet for PDUs with 15-bit LIs. A padding “Length Indicator” must be placed after any “Length Indicators” for a PDU.

Upon reception of a SDU, RLC shall segment the SDU to fit into the fixed size of a PDU. The segments are inserted in the data field of a PDU. A “Length Indicator”~~length indicator~~ shall be added to each PDU that includes a border of an SDU, i.e. if a PDU does not contain an “Length Indicator”~~LI~~, the SDU continues in the next PDU. The length indicator indicates where the border occurs in the PDU. The data after the indicated border can be either a new SDU, padding or piggybacked information. If padding or piggybacking is added another “Length Indicator”~~LI~~ shall be added unless the padding size is one octet for PDUs with 15-bit “Length Indicators”~~LIs~~, see clauses 9.2.2.8 and 9.2.2.9.

Reference(s)

TS 25.322 clauses 9.2.2.8 and 11.3.2.1.2.

7.2.3.7.3 Test purpose

1. To test that a large SDU is correctly segmented and padding added at the end.
2. To test that a large SDU is received correctly, whether or not it has piggy-backed status at the end.

7.2.3.7.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_15_PayloadSize + 1bytes.

Test procedure

a) The SS transmits an RLC SDU (SDU1) of size AM_15_PayloadSize + 1 bytes, and polls the receiver for status.

b) The SS checks the “Length Indicator”~~length indicator sizes and~~ values ~~of~~in the RLC PDU returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit “Length Indicator” size).

c) The SS transmits another RLC SDU (SDU2) of size AM_15_PayloadSize + 1 bytes, and includes piggy-backed status in the second of the 2 PDUs sent. The SS also polls the receiver for status.

d) The SS checks the “Length Indicator”~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit “Length Indicator” size).

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1 +poll + Padding
4	→		UPLINK RLC PDU	No LI
5	→		UPLINK RLC PDU	Poll, Check LIs and re-assembled SDU
5a	→		*STATUS PDU*	*If piggy-backed status is not used in 5*
6	←		DOWNLINK RLC PDU	SDU 2
7	←		DOWNLINK RLC PDU	SDU 2 + poll + piggy-backed status
8	→		UPLINK RLC PDU	No LI
9	→		UPLINK RLC PDU	Poll, Check LIs and re-assembled SDU
9a	→		*STATUS PDU*	*If piggy-backed status is not used in 9*
10	←		STATUS PDU	
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.7.5 Test requirements

1. In steps 4 and 5, the UE shall return two RLC PDUs. The first shall ~~have~~ not include any “Length Indicators”~~LIs~~. The second shall have a “Length Indicator”~~LI~~ indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

2. In steps 8 and 9, the UE shall return two RLC PDUs. The first shall ~~have~~ not include any “Length Indicators”~~LIs~~. The second shall have a “Length Indicator”~~LI~~ indicating the PDU contains an SDU boundary after octet 1 of the data field, and the second shall indicate either that the remainder of the PDU contains padding, or that it contains a piggy-backed status PDU.

3. The length and data content of all received SDUs shall ~~should~~ be the same as the transmitted SDUs.

7.2.3.8 Segmentation and Reassembly / 15-bit "Length Indicators" / LI = 0

7.2.3.8.1 Definition

The RLC segments and concatenates SDUs into AMD PDU~~payload unit~~s according to the PDU~~payload unit~~ size configured by RRC. A pre-defined "Length Indicator"~~length indicator~~ value is used to indicate when an SDUs ends coincident with the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators"~~length indicators~~ will result in failure of the UE to communicate.

7.2.3.8.2 Conformance requirement

If the PDU is exactly filled with the last segment of a SDU and there is no room for a~~n~~ "Length Indicator"~~LI~~ field, a~~n~~ "Length Indicator"~~LI~~ field set to only 0's shall be included as the first "Length Indicator"~~length indicator~~ in the following PDU.

Reference(s)

TS 25.322 clause 11.3.2.1.

7.2.3.8.3 Test purpose

1. To test that where an SDU exactly fills a PDU, a~~n~~ "Length Indicator"~~LI~~ of all 0's~~value zero~~ is placed by the transmitter as the first "Length Indicator"~~LI~~ in the next PDU.
2. To test that where an SDU exactly fills a PDU, and an "Length Indicator"~~LI~~ of all 0's~~value zero~~ is the first "Length Indicator"~~LI~~ in the next PDU, the receiver correctly reassembles the SDU.

7.2.3.8.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator"~~length indicator~~ tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_15_PayloadSize bytes.

Test procedure

a) The SS transmits an RLC SDU of size 2 * AM_15_PayloadSize bytes. The SS polls the receiver for status in the last RLC PDU sent.

b) The SS checks the "Length Indicator"~~length indicator sizes and~~ values ~~of~~in the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=0, poll and padding
5	→		UPLINK RLC PDU	No Lis
6	→		UPLINK RLC PDU	(Poll) Check Lis and re-assembled SDU
6a	→		*STATUS PDU*	*If piggy-backed status is not used in 6*
7	←		STATUS PDU	
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.8.5 Test requirements

The UE shall return two RLC PDUs. The first shall have no “Length Indicators”~~LIs~~. The second shall have a~~n~~ “Length Indicator”~~LI~~ indicating that the SDU exactly filled the previous PDU, and a~~n~~ “Length Indicator”~~LI~~ indicating either that the remainder of the PDU contains padding, or that it contains a piggy-backed STATUS PDU.

The length of the received SDU ~~should~~ shall be AM_15_PayloadSize bytes, and the data content shall be the same as the first AM_15_PayloadSize bytes of the transmitted SDU.

7.2.3.9 Segmentation and reassembly / 15-bit “Length Indicators” / One octet short LI

7.2.3.9.1 Definition

The RLC segments and concatenates SDUs into AMD PDU~~payload unit~~s according to the PDU~~payload unit~~ size configured by RRC. A pre-defined “Length Indicator”~~length indicator~~ value is used to indicate when an SDUs ends one octet short of the end of the previous PU. Incorrect operation of segmentation, concatenation, or coding of “Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.3.9.2 Conformance requirement

In the case where the last segment of an RLC SDU is one octet short of exactly filling the last RLC PU, and 15-bit “Length Indicators”~~Length Indicators~~ are used, the next “Length Indicator” shall be placed as the first “Length Indicator” in the next PDU and have value “Length Indicator”~~LI~~=111 1111 1111 1011.

In the case where a PDU contains a 15-bit “Length Indicator”~~LI~~ indicating that an SDU ends with one octet left in the PDU, the last octet of this PDU shall be ignored and shall not be filled with the first octet of the next SDU data.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.3.9.3 Test purpose

1. To test that where the UE transmits an SDU, which is one byte short of filling a PDU, an “Length Indicator”~~LI~~ indicating one byte short is placed as the first “Length Indicator”~~LI~~ in the next PDU.
2. To test that where the UE correctly handles a received PDU containing a~~n~~ “Length Indicator”~~LI~~ indicating that an SDU ended one byte short of the end of the previous PDU.

7.2.3.9.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The radio bearer is placed into UE test loop mode 1 with the UL SDU size set to AM_15_PayloadSize – 1bytes.

Test procedure

a) The SS transmits an RLC SDU of size (2 * AM_15_PayloadSize) - 1 bytes. The SS polls the receiver for status in the last RLC PDU sent.

b) The SS checks the “Length Indicator”~~length indicator sizes and~~ values of the RLC PDUs returned on the uplink, and checks the length and content of the received RLC SDU (assuming a 15-bit “Length Indicator” size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	LI=111 1111 1111 1011, poll and padding
5	→		UPLINK RLC PDU	No LIs
6	→		UPLINK RLC PDU	(Poll) Check LIs and re-assembled SDU
6a	→		*STATUS PDU*	*If piggy-backed status is not used in 6*
7	←		STATUS PDU	
8			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.9.5 Test requirements

1. The UE shall return two RLC PDUs. The first shall have no “Length Indicators”~~LIs~~. The second shall have 2 “Length Indicators”~~LIs~~. The first “Length Indicator”~~LI~~ shall be an “Length Indicator”~~LI~~ indicating that the SDU was one byte short of filling the previous PDU, and the second shall be an “Length Indicator”~~LI~~ indicating that the remainder of the PDU contains padding.

2. The length of the received SDU ~~should~~ shall be AM_15_PayloadSize - 1 bytes, and the data content shall be the same as the first AM_15_PayloadSize - 1 bytes of the transmitted SDU.

7.2.3.10 Reassembly / 15-bit “Length Indicators” / Reserved LI value

7.2.3.10.1 Definition

The RLC segments and concatenates SDUs into AMD PDU~~payload unit~~s according to the PDU~~payload unit~~ size configured by RRC. “Length Indicators”~~Length indicators~~ are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of a reserved LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of “Length Indicators”~~length indicators~~ will result in failure of the UE to communicate.

7.2.3.10.2 Conformance requirement

Upon reception of an AMD PDU that contains "Length Indicator" value "111111111111100" or "111111111111101": PDUs with this coding will be discarded by this version of the protocol.

Reference(s)

TS 25.322 clause 9.2.2.8.

7.2.3.10.3 Test purpose

To test that PDUs with reserved "Length Indicators"~~length indicators~~ are discarded by the receiving RLC.

7.2.3.10.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator"~~length indicator~~ tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Missing PDU Indicator	FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits three RLC SDUs of size AM_15_PayloadSize + 1 bytes. In the second PDU, the SS sets the value of the "Length Indicator"~~LI~~ to 111111111111100. In the third PDU for transmission, the SS sets the value of the second (padding) "Length Indicator"~~LI~~ to 111111111111101.

b) The SS waits to receive a status report from the UE.

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 + SDU 2, LI = 111111111111100
4	←		DOWNLINK RLC PDU #2	SDU 2+ SDU 3, LI = 111111111111101
5	←		DOWNLINK RLC PDU #3	SDU 3 + poll
6	→		STATUS PDU	Nack PDUs 1 and 2
7			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.10.5 Test requirements

1. The UE shall return a STATUS PDU indicating that PDUs with sequence numbers 1 and 2 were incorrectly received.

2. No uplink SDUs shall be received.

7.2.3.11 Reassembly / 15-bit "Length Indicators" / LI value > PDU size

7.2.3.11.1 Definition

The RLC segments and concatenates SDUs into PDU~~payload unit~~s according to the PDU~~payload unit~~ size configured by RRC. "Length Indicators"~~Length indicators~~ are added to allow correct reconstruction of SDUs. The behaviour of the RLC on reception of an invalid LI value has been specified. Incorrect operation of segmentation, concatenation, or coding of "Length Indicators"~~length indicators~~ will result in failure of the UE to communicate.

7.2.3.11.2 Conformance requirement

If the "Length Indicator"~~length indicator~~ of a PDU has a value that is larger than the PDU size – the number of octets containing "Length Indicators"~~LIs~~ in the PDU – 1 and is not one of the predefined values listed in the table of 3GPP TS 25.322 clause 9.2.2.8, the PDU shall be discarded and treated as a missing PDU.

Reference(s)

TS 25.322 clause 11.3.4.5.

7.2.3.11.3 Test purpose

To test that PDUs with "Length Indicators"~~length indicators~~ that point beyond the end of the PDU are discarded by the receiving RLC.

7.2.3.11.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 15-bit "Length Indicator"~~length indicator~~ tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Missing PDU Indicator	FALSE

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits three RLC SDUs of size AM_15_PayloadSize + 1 bytes. All the SDUs are concatenated or segmented over successive RLC PDUs. In the third PDU for transmission, the SS sets value of the "Length Indicator"~~length indicator~~ to be AM_15_PayloadSize + 1 (decimal).

b) The SS checks the "Length Indicator"~~length indicator sizes and~~ values of the RLC PDUs returned on the uplink, and checks the content of the received STATUS PDUs (assuming a 15-bit "Length Indicator" size).

c) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU #0	SDU 1
3	←		DOWNLINK RLC PDU #1	SDU 1 & SDU 2
4	←		DOWNLINK RLC PDU #2	SDU 2 & SDU 3, with bad LI
5	←		DOWNLINK RLC PDU #4	SDU 3, poll and padding
6	→		STATUS PDU	Nack PDU #2
7			RB RELEASE	Optional step

7.2.3.11.5 Test requirements

The UE shall indicate that the PDU with sequence number 2 was not received.

7.2.3.12 Correct use of Sequence Numbering

7.2.3.12.1 Definition

Peer RLC entities use sequence numbering to detect missing PDUs, and for flow control purposes. Incorrect operation of sequence numbering will result in failure of the UE to communicate.

7.2.3.12.2 Conformance requirement

This sub-clause describes the state variables used in AM and UM in order to specify the peer-to-peer protocol. All state variables are non-negative integers. UMD and AMD PDUs are numbered by modulo integer sequence numbers (SN) cycling through the field: 0 to 2^{12} – 1 for AM … . All arithmetic operations contained in the present document on VT(S), VT(A), VT(MS), VR(R), VR(H) and VR(MR) are affected by the AM modulus. … . When performing arithmetic comparisons of state variables or Sequence number values a modulus base shall be used. This modulus base is subtracted (within the appropriate field) from all the values involved and then an absolute comparison is performed. At the Sender, VT(A) … shall be assumed to be the modulus base in AM … . At the Receiver, VR(R) … shall be assumed to be the modulus base in AM … .

The RLC shall maintain the following state variables in the Sender.

a) VT(S) - Send state variable.

This state variable contains the "Sequence Number" of the next AMD PDU to be transmitted for the first time (i.e. excluding retransmitted PDUs). It shall be updated after the aforementioned AMD PDU is transmitted or after transmission of a MRW SUFI which includes SN_MRW$_{LENGTH}$ >VT(S) (see subclause 11.6). The initial value of this variable is 0.

~~PDUs are sequentially and independently numbered and may have the value 0 through n minus 1 (where n is the modulus of the sequence numbers). The modulus equals 2^{12} for AM …; the sequence numbers cycle through the entire range: 0 through 2^{12} – 1 for AM.~~

~~VT(S) - Send state variable.~~

~~This state variable contains the "Sequence Number" of the next AMD PDU to be transmitted for the first time (i.e. excluding retransmitted PDUs). It shall be updated after the aforementioned AMD PDU is transmitted. The initial value of this variable is 0.~~

[...]

If the AMD PDU is transmitted for the first time, the Sender shall:

- set the "Sequence Number" field equal to VT(S);

Reference(s)

TS 25.322, clauses 9.4 and 11.3.2.1.

7.2.3.12.3 Test purpose

1. To verify that the UE transmits the first PDU with the Sequence Number field equal to 0.
2. To verify that the UE increments the Sequence Number field according to the number of PDUs transmitted.
3. To verify that the UE wraps the Sequence Number after transmitting the 2^{12}-1th PDU.
4. To verify that the UE receiver accepts PDUs with SNs that wrap around every 2^{12}-1th PDU.

7.2.3.12.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission window size	2047
Downlink RLC Receiving window size	2047

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 bytes.

Test procedure

a) The SS sends 2049 RLC SDUs to the UE, each of (2 * AM_7_PayloadSize) - 1 bytes. The SS polls for status on each 128th RLC PDU and the last PDU transmitted

b) When the SS received an uplink PDU with the P bit set to 1, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far.

c) The SS checks the sequence numbers of the RLC PDUs it receives in the uplink

d) The SS checks the content of the SDUs it receives from the UE.

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU #0	
3	←	DOWNLINK RLC PDU #1	
		…	Transmission of DOWNLINK PDUs continues
4	→	UPLINK RLC PDU	SN should be set to 0
5	→	UPLINK RLC PDU	SN should be set to 1
	←	…	Transmission of DOWNLINK PDUs continues to SN = 127
6	←	DOWNLINK RLC PDU #127	Poll
7	→	UPLINK STATUS PDU	
	←	…	Transmission of DOWNLINK PDUs continues, polling every 128th PDU, to SN = 4095
8	←	DOWNLINK RLC PDU #4095	
9	←	DOWNLINK RLC PDU #4096	SN=0
10	←	DOWNLINK RLC PDU #4097	SN=1, Poll
10a	→	UPLINK RLC PDUs	Transfer of RLC PDUs continues to SN = 2046, poll
10b	←	STATUS PDU	ACK SN 0 to 2046
10c	→	UPLINK RLC PDUs…	Transfer of RLC PDUs continues to SN = 4093, Poll
10d	←	STATUS PDU	ACK SN 2047 to 4093
10e	→	UPLINK RLC PDU	SN should be set to 4094
11	→	UPLINK RLC PDU	SN should be set to 4095
12	→	UPLINK RLC PDU	SN should be set to 0
13	→	UPLINK RLC PDU	SN should be set to 1, Poll
14	←	DOWNLINK STATUS PDU	
15		RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

~~NOTE: The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.12.5 Test requirements

1. The first PDU received ~~should~~ shall have the SN field set to 0. The second PDU ~~should~~ shall have the SN field set to 1, and the 4 097th PDU ~~should~~ shall have the SN field set to 0.
2. The size and data content of the received SDUs shall match those of the transmitted SDUs.

7.2.3.13 Control of Transmit Window

7.2.3.13.1 Definition

This test is to check that the UE is able to correctly control its RLC transmission window. Correct operation of RLC windowing is critical for acknowledged mode operation.

7.2.3.13.2 Conformance requirement

VT(MS) - Maximum Send state variable.

This state variable contains the "Sequence Number" of the first AMD PDU that can be rejected by the peer Receiver, VT(MS) = VT(A) + VT(WS). This value represents the upper edge of the transmission window. The transmitter shall not transmit AMD PDUs with "Sequence Number" ≥ VT(MS) unless VT(S) ≥ VT(MS). In that case, the AMD PDU with "Sequence Number" = VT(S) - 1 can also be transmitted. VT(MS) shall be updated when VT(A) or VT(WS) is updated.

The initial value of this variable is Configured_Tx_Window_size.

… The receiver is always allowed to change the Tx window size of the peer entity during a connection, but the minimum and the maximum allowed value is given by RRC configuration. The Rx window of the receiver is not changed.

Reference(s)

TS 25.322, clauses 9.2.2.11.3 and 9.4.

7.2.3.13.3 Test purpose

To verify that the UE does not transmit PDUs with sequence numbers outside of the transmit window, except the PDU with SN=VT(S)-1, even when the transmit window size is changed by the receiver.

7.2.3.13.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~"Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission window size	8

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let W be the size of the transmit window.

The length of all transmitted SDUs is set to AM_7_PayloadSize - 1 bytes.

a) The SS transmits 3*W RLC SDUs to the UE.

b) The SS checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit STATUS PDUs for any other reason.

c) After confirming that the UE has stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far.

d) The SS again checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit further STATUS PDUs for any other reason.

e) After confirming that the UE has again stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far, and containing a WINDOW command to reduce the UE transmit window size (W) to half its initial size.

f) The SS checks the RLC SDUs received on the uplink, but does not reply to poll requests from the UE, or transmit STATUS PDUs for any other reason.

g) After confirming that the UE has stopped transmitting new RLC SDUs for at least (2*W*TTI) ms, the SS transmits a STATUS PDU acknowledging all the RLC PDUs received so far.

h) The SS checks the RLC SDUs received on the uplink.

i) The SS may optionally release the radio bearer.

NOTE: Window arithmetic is carried out modulo 4096.

The test procedure is run with the window transmit window size set to the default (8), and the repeated with the transmit window size set to 1536.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 2
4	←		DOWNLINK RLC PDU	SDU 3
5	←		DOWNLINK RLC PDU	SDU 4
6	←		…	SS continues to transmit RLC SDUs
7	←		DOWNLINK RLC PDU	SDU 3W
8	→		UPLINK RLC PDU	SDU 1
9	→		UPLINK RLC PDU	SDU 2
10	→		…	SS continues to receive RLC SDUs
11	→		UPLINK RLC PDU	SDU W + poll
12				No new transmissions from UE
13	←		STATUS PDU	
14	→		UPLINK RLC PDU	SDU W+1
15	→		UPLINK RLC PDU	SDU W+2
16	→		…	SS continues to receive RLC SDUs
17	→		UPLINK RLC PDU	SDU 2W + poll
18				No new transmissions from UE
19	←		STATUS PDU	WINDOW = W/2
20	→		UPLINK RLC PDU	SDU 2W+1
21	→		UPLINK RLC PDU	SDU 2W+2
22	←		…	SS continues to receive RLC SDUs
23	→		UPLINK RLC PDU	SDU 2W + W/2 + poll
24				No new transmissions from UE
25	←		STATUS PDU	
26	→		UPLINK RLC PDU	SDU 2W+W/2+1
27	→		UPLINK RLC PDU	SDU 2W+W/2+2
28	←		…	SS continues to receive RLC SDUs
29	→		UPLINK RLC PDU	SDU 3W + poll
30			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes. NOTE 2: The polls in step 11, 17, 23 and 29 are transmitted as the last PDU in buffer trigger is set to TRUE and the transmitted PDU is the last PDU in the transmitter window, see TS 25.322 clause 9.7.1.				
~~NOTE 1: The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~ ~~NOTE 2: The polls in step 11, 17, 23 and 29 are transmitted as the last PDU in buffer trigger is set to TRUE and the transmitted PDU is the last PDU in the transmitter window, see TS 25.322 clause 9.7.1.~~				

7.2.3.13.5 Test requirements

From steps 8 to 11, the SDU contents reassembled from the uplink shall match those of the first W transmitted SDUs.

At step 12 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of PDUs with sequence numbers from 0 to W-1.

After step 13, the UE shall resume transmission of the next W SDUs. The contents of these SDUs shall match those of SDUs W+1 to 2*W sent on the downlink.

At step 18 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of PDUs with sequence numbers from W to 2W-1.

After step 19, the UE shall resume transmission of the next W/2 SDUs. The contents of these SDUs shall match those of SDUs 2*W+1 to 2*W+W/2 sent on the downlink.

At step 24 there shall be no further transmission on the uplink DTCH whilst the SS is waiting, except for any repeats of PDUs with sequence number from 2W to W/2-1.

After step 25, the UE shall resume transmission of the next W/2 SDUs. The contents of these SDUs shall match those of SDUs 2*W+W/2+1 to 3*W sent on the downlink.

7.2.3.14 Control of Receive Window

7.2.3.14.1 Definition

This test is to check that the UE is able to correctly control its RLC receive window. Correct operation of RLC windowing is critical for acknowledged mode operation.

This test applies to all UE.

7.2.3.14.2 Conformance requirement

Upon reception of an AMD PDU with "Sequence Number" outside the interval VR(R)≤SN<VR(MR), the Receiver shall:

- discard the AMD PDU;
- if the "polling bit" in the discarded AMD PDU is set to "1":
  - initiate the STATUS PDU transfer procedure.

Reference(s)

TS 25.322, clause 11.3.4.2.

7.2.3.14.3 Test purpose

~~1.~~ To verify that the UE discards PDUs with sequence numbers outside the upper boundary of the receive window.

7.2.3.14.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission window size	8
Downlink RLC	
Missing PDU Indicator	FALSE
Receiving window size	8

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let W be the size of the receive window.

The length of all transmitted SDUs is set to AM_7_PayloadSize - 1 bytes.

a) The SS transmits W RLC SDUs to the UE, polling only on the last RLC PDU.

b) The SS checks the RLC SDUs received on the uplink, responding to poll requests with acknowledgements. Then after receiving the STATUS PDU from the UE it transmits a further RLC SDU with the poll bit set. The SS sets the sequence number for the associated RLC PDU above the top of the receive window, for example, 2*W.

c) The SS receives a STATUS PDU from the UE.

d) The SS transmits a further RLC SDU with the sequence number set to the value of the next sequence number within the receive window.

e) The SS checks the RLC SDUs received on the uplink.

f) The SS may optionally release the radio bearer.

This test case is run once for the default receive window size (8) and again with the receive window size set to 1536.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1, SN = 0
3	←	DOWNLINK RLC PDU	SDU 2, SN = 1
4	←	…	SS continues to transmit RLC SDUs
5	←	DOWNLINK RLC PDU	SDU W + Poll, SN = W-1
6	→	STATUS PDU	
7	→	UPLINK RLC PDU	SDU 1
8	→	UPLINK RLC PDU	SDU 2
9		…	UE continues to transmit RLC SDUs
10	→	UPLINK RLC PDU	SDU W, Poll
10a	←	STATUS PDU	
11	←	DOWNLINK RLC PDU	SDU W+1, SN = 2W, Poll
11a	→	STATUS PDU	
12	←	DOWNLINK RLC PDU	SDU W+2, SN = W
13	→	UPLINK RLC PDU	SDU W+2
14		RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.14.5 Test requirements

1. The SS shall receive back SDUs 1 to W, and SDU W + 2 only. No other SDUs shall be looped back.
2. The SS shall receive a STATUS PDU in step 11a. SN=2W shall not be indicated as received in the STATUS PDU. Negative acknowledgements shall not be indicated for SN=W to 2W-1 either.

7.2.3.15 Polling for status / Last PDU in transmission queue

7.2.3.15.1 Definition

This case tests that the UE will poll for a status request on the last PDU in its transmission queue when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.15.2 Conformance requirement

Last PDU in buffer.

When an AMD PDU to be transmitted for the first time is submitted to lower layer, the Sender shall:

- if the AMD PDU is the last AMD PDU scheduled for transmission according to subclause 11.3.2 (i.e. no data received from upper layer remains to be segmented into AMD PDUs); or
- if the AMD PDU is the last AMD PDU that is allowed to transmit according to subclause 11.3.2.2:
  - trigger a poll for this AMD PDU. ~~The Sender triggers the Polling function when the last AMD PDU to be transmitted for the first time and is allowed to transmit according to subclause 3GPP TS 25.322 clause 11.3.2.2 is submitted to lower layer.~~

...

- AMD PDUs are only allowed to transmit:
  - if the AMD PDU has a "Sequence Number" < VT(MS); or
  - if the AMD PDU has a "Sequence Number" equal to VT(S)-1; and
  - if the AMD PDU is not restricted to be transmitted by the local suspend function, see 3GPP TS 25.322 subclause 9.7.5.

...

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see 3GPP TS 25.322 subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clause 11.3.2.1.1, 9.7.1 and 11.3.2.

7.2.3.15.3 Test purpose

1. To verify that a poll is performed when only one PDU is available for transmission, and the poll prohibit timer function is not used.
2. To verify that a poll is performed when only one PDU is available for transmission, and the poll prohibit timer function is used, but inactive.

7.2.3.15.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Timer_poll_prohibit	disabled	200
Last transmission PDU poll	TRUE	TRUE
Last retransmission PDU poll	FALSE	FALSE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 bytes.

Test procedure

a) The SS transmits an RLC SDU of length (4 * AM_7_PayloadSize) - 1bytes to the UE.

b) The SS checks the uplink RLC PDUs for a poll for status flag.

c) The SS may optionally release the radio bearer.

The test is repeated using the RLC parameters given in the Second run column of the configuration table for the initial conditions.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1			RB ESTABLISHMENT	See generic procedures
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 1
4	←		DOWNLINK RLC PDU	SDU 1
5	←		DOWNLINK RLC PDU	SDU 1 + Poll
6	→		STATUS PDU	
7	→		UPLINK RLC PDU	SDU 1
8	→		UPLINK RLC PDU	SDU 1 + Poll
9	←		STATUS PDU	
10			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.15.5 Test requirements

The Poll bit shall be set in the AMD PDU header of the PDU returned in step 8. The poll bit shall not be set in the AMD PDU header of other PDUs.

7.2.3.16 Polling for status / Last PDU in retransmission queue

7.2.3.16.1 Definition

This case tests that the UE will poll for a status request on the last PDU in its retransmission queue when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.16.2 Conformance requirement

Last PDU in Retransmission buffer.

When a retransmitted AMD PDU is submitted to lower layer, the Sender shall:

- if the AMD PDU is the last AMD PDU scheduled for retransmission according to subclause 11.3.2; or
- if the AMD PDU is the last of the AMD PDUs scheduled for retransmission that are allowed to transmit according to subclause 11.3.2.2:
    - trigger a poll for this AMD PDU.~~The Sender triggers the Polling function when the last AMD PDU to be retransmitted and is allowed to transmit according to subclause 3GPP TS 25.322 clause 11.3.2.2 is submitted to lower layer.~~

...

- AMD PDUs are only allowed to transmit:
    - if the AMD PDU has a "Sequence Number" < VT(MS); or
    - if the AMD PDU has a "Sequence Number" equal to VT(S)-1; and
    - if the AMD PDU is not restricted to be transmitted by the local suspend function, see 3GPP TS 25.322 subclause 9.7.5.

...

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see 3GPP TS 25.322 subclause 9.7.1):
    - if polling is not prohibited, see subclause 9.5:
        - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:

- set the "Polling bit" in the AMD PDU header to "0".

Reference

25.322 clause 11.3.2.1.1, 9.7.1 and 11.3.2.

7.2.3.16.3 Test purpose

1. To verify that a poll is performed when only one PDU is available for retransmission, and the poll prohibit timer function is not used.
2. To verify that a poll is performed when only one PDU is available for retransmission, and the poll prohibit timer function is used, but inactive.

7.2.3.16.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Timer_poll_prohibit	disabled	200
Last transmission PDU poll	FALSE	FALSE
Last retransmission PDU poll	TRUE	TRUE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) - 1 bytes.

Test procedure

a) The SS transmits an RLC SDU of length (4 * AM_7_PayloadSize) - 1 bytes to the UE.

b) The SS checks the uplink RLC PDUs for a poll for status flag.

c) The SS transmits a STATUS PDU negatively acknowledging the first uplink RLC PDU as missing.

d) The SS waits for the RLC PDU to be retransmitted and then checks the uplink RLC PDU for a poll for status flag.

e) The SS may optionally release the radio bearer.

The test is repeated using the RLC parameters given in the Second run column of the configuration table for the initial conditions.

Expected sequence

Step	**Direction** **UE SS**	**Message**	**Comments**
1		RB ESTABLISHMENT	See generic procedures
2	←	DOWNLINK RLC PDU	SDU 1
3	←	DOWNLINK RLC PDU	SDU 1
4	←	DOWNLINK RLC PDU	SDU 1
5	←	DOWNLINK RLC PDU	SDU 1 + Poll
6	→	STATUS PDU	
7	→	UPLINK RLC PDU	SDU 1, SN=0
8	→	UPLINK RLC PDU	SDU 1, SN=1
9	←	STATUS PDU	NAK: SN=0
10	…		Wait for retransmission
11	→	UPLINK RLC PDU	SDU 1, SN=0 + Poll
12	←	STATUS PDU	
13		RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.			

7.2.3.16.5 Test requirements

The Poll bit shall be set in the AMD PDU header of the PDU returned in step 11. The poll bit shall not be set in the AMD PDU header of other PDUs.

7.2.3.17 Polling for status / Poll every Poll_PDU PDUs

7.2.3.17.1 Definition

This case tests that the UE will poll for a status request every Poll_PDU PDUs when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.17.2 Conformance requirement

VT(PDU).

This state variable is used when the "poll every Poll_PDU PDU" polling trigger is configured. It shall be incremented by 1 for each AMD PDU that is transmitted including both new and retransmitted AMD PDUs. When it becomes equal to the value Poll_PDU, a new poll shall be transmitted and the state variable shall be set to zero.

The initial value of this variable is 0.

Poll_PDU.

This protocol parameter indicates how often the transmitter shall poll the Receiver in the case where "polling every Poll_PDU PDU" is configured by upper layers. It represents the upper limit for the state variable VT(PDU). When VT(PDU) equals the value Poll_PDU a poll shall be transmitted to the peer entity.

Every Poll_PDU PDU.

The Sender triggers the Polling function for every Poll_PDU PDU. Both retransmitted and new AMD PDUs shall be counted.

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clauses 9.4, 9.6, 11.3.2.1.1 and 9.7.1.

7.2.3.17.3 Test purpose

1. To verify that a poll is performed when VT(PDU) reaches Poll_PDU.
2. To verify VT(PDU) is incremented for both new and retransmitted PDUs.

7.2.3.17.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Poll_PDU	4
Last transmission PDU poll	FALSE
Last retransmission PDU poll	FALSE

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let the value of Poll_PDU be P:

a) The SS sends 3 * P - 2 RLC SDUs of size AM_7_PayloadSize - 1 bytes to the UE in PDUs with sequence numbers that are contiguous, starting from zero.

b) The SS checks the sequence numbers and polling bits of the RLC PDUs returned on the uplink.

c) The SS sends a STATUS PDU negatively acknowledging two RLC PDUs with a sequence numbers of already received PDUs. The other PDUs are acknowledged as received correctly.

d) The SS checks the sequence numbers and polling bits of the RLC SDUs returned on the uplink.

e) The SS terminates the connection.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 2
3	←		…	SS continues to transmit RLC SDUs
4	←		DOWNLINK RLC PDU	SDU 3P – 2
5	→		UPLINK RLC PDU	SDU 1, SN=0
6	→		UPLINK RLC PDU	SDU 2, SN=1
7	→		…	SS continues to receive RLC SDUs
8	→		UPLINK RLC PDU	SDU P, Poll
9	←		STATUS PDU	NAK SN=0 and SN=1
10	→		UPLINK RLC PDU	SDU 1, SN=0
11	→		UPLINK RLC PDU	SDU 2, SN=1
12	→		UPLINK RLC PDU	SDU P+1
13	→		…	SS continues to receive RLC SDUs
14	→		UPLINK RLC PDU	SDU 2P – 2, Poll
15	→		…	SS continues to receive RLC SDUs
16	→		UPLINK RLC PDU	SDU 3P – 2, Poll
17			RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

NOTE 2: Due to retransmissions it is not possible to determine the the exact PDU that a poll is received on. i.e. A poll may be received on a retransmitted PDU or a PDU transmitted for the first time.

~~NOTE: Due to retransmissions it is not possible to determine the the exact PDU that a poll is received on. i.e. A poll may be received on a retransmitted PDU or a PDU transmitted for the first time.~~

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.17.5 Test requirements

The SS shall receive a poll for status every Poll_PDU RLC PDUs sent on the uplink.

7.2.3.18 Polling for status / Poll every Poll_SDU SDUs

7.2.3.18.1 Definition

This case tests that the UE will poll for a status request every Poll_SDU SDUs when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.18.2 Conformance requirement

VT(SDU).

> This state variable is used when the "poll every Poll_SDU SDU" polling trigger is configured. It shall be incremented by 1 for a given SDU when all the AMD PDUs carrying a part of this SDU have been transmitted at least once. When it becomes equal to the value Poll_SDU a new poll shall be transmitted and the state variable shall be set to zero. The "Polling bit" shall be set to "1" in the first transmission of the AMD PDU that contains the last segment of the SDU.
>
> The initial value of this variable is 0.

Poll_SDU.

> This protocol parameter indicates how often the transmitter shall poll the Receiver in the case where "polling every Poll_SDU SDU" is configured by upper layers. It represents the upper limit for state variable VT(SDU). When VT(SDU) equals the value Poll_SDU a poll shall be transmitted to the peer entity.

Every Poll_SDU SDU.

> The Sender triggers the Polling function for every Poll_SDU SDU. The poll shall be triggered for the first transmission of the last AMD PDU that contains segments of the RLC SDU.

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see TS 25.322 subclause 9.7.1):
  - if polling is not prohibited, see TS 25.322 subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clauses 9. 4, 9.6, 9.7.1, and 11.3.2.1.1.

7.2.3.18.3 Test purpose

1. To verify that a poll is performed when VT(SDU) reaches Poll_ SDU.
2. To verify that the poll is sent in the last PDU of the SDU.

7.2.3.18.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~"Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Polling info Last transmission PDU poll Poll_SDU	 FALSE 1

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (4 * AM_7_PayloadSize) - 1 bytes.

Let the value of Poll_SDU be P.

a) The SS sends 2 * P RLC SDUs of size AM_7_PayloadSize - 1 bytes to the UE in PDUs with sequence numbers that are contiguous, starting from zero.

b) The SS checks the sequence numbers and polling bits of the RLC SDUs returned on the uplink.

c) The SS terminates the connection.

The test is repeated with Poll_SDU set to 64 and the txWindow Size set to 256.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 2
3	←		…	SS continues to transmit RLC SDUs
4	←		DOWNLINK RLC PDU	SDU 2P
5	→		UPLINK RLC PDU	SDU 1 Expanded to (4 * AM_7_PayloadSize) - 1 bytes by test function
6	→		UPLINK RLC PDU	
7	→		…	SS continues to receive RLC SDUs
8	→		UPLINK RLC PDU	SDU P, Poll
9	←		STATUS PDU	
10	→		UPLINK RLC PDU	SDU P+1 Expanded to (4 * AM_7_PayloadSize) - 1 bytes by test function
11	→		UPLINK RLC PDU	
12	→		…	SS continues to receive RLC SDUs
13	→		UPLINK RLC PDU	SDU 2P, Poll
14			RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.18.5 Test requirements

The UE shall return uplink PDUs that contain polls for status in sequence numbers 4 * P – 1 and 8 * P – 1. No other PDUs ~~should~~ shall poll for status.

7.2.3.19 Polling for status / Timer triggered polling (Timer_Poll_Periodic)

7.2.3.19.1 Definition

This case tests that the UE will poll for a status request every Timer_Poll_Periodic ms when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

7.2.3.19.2 Conformance requirement

This timer shall only be used when "timer based polling" is configured by upper layers. The value of the timer is signalled by upper layers. The timer shall be started when the RLC entity is created. When the timer expires, the RLC entity shall:

- restart the timer;
- if AMD PDUs are available for transmission or retransmission (not yet acknowledged):
    - trigger a poll.

[...]

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see TS 25.322 subclause 9.7.1):
    - if polling is not prohibited, see TS 25.322 subclause 9.5:
        - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
    - set the "Polling bit" in the AMD PDU header to "0".

~~Each time the timer expires, the timer is restarted and a poll is triggered (either by the transmission of a PDU which was not yet sent, or by a retransmission). If there is no PDU to be transmitted and all PDUs have already been acknowledged, a poll shall not be triggered and the timer shall only be restarted. The value of the timer is signalled by RRC.~~

~~The Polling bit shall be set to 1 if … timer based polling is used and Timer_Poll_Periodic has expired.~~

Reference

TS 25.322 clauses 9.5, 9.7.1 and 11.3.2.1.1.

7.2.3.19.3 Test purpose

1. To verify that the UE polls the SS in the next PDU to be transmitted or retransmitted each time the Timer_Poll_Periodic timer expires.
2. To verify that if there is no PDU to be transmitted, and all the PDUs have already been acknowledged, the timer is restarted, but no poll is sent.

7.2.3.19.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Last retransmission PDU poll	FALSE	FALSE
Last transmission PDU poll	FALSE	FALSE
Timer_poll_periodic	100	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of Timer_Poll_Periodic:

a) The SS waits for at least 2*T ms before starting any transmissions, and monitors the uplink.

b) The SS sends 4 * (T/TTI) RLC SDUs of size (AM_7_PayloadSize/2) - 1 bytes to the UE. The SDUs are packed 2 SDUs to one PDU.

c) The SS waits for the first PDU to be received with the P bit set, records the arrival time (T_1) and responds with a STATUS PDU normally.

d) The SS waits for the reception of the next PDU with the P bit set, records the arrival time (T_2), and then transmits a STATUS PDU reporting that none of the uplink PDUs were correctly received, except for the last PDU containing the poll bit which is acknowledged.

e) The SS waits for the next PDU received with the P bit set, and records the arrival time (T_3).

f) The SS waits for the reception of the next PDU with the P bit set and records the arrival time (T_4).

g) The SS may optionally release the radio bearer.

The Test is repeated using the parameters specified for the second run.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1, SDU2
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU 4*(T/TTI)-1SDU 4*(T/TTI)
4	→		UPLINK RLC PDU	SDU 1, SN=0
5	→		UPLINK RLC PDU	SDU 2, SN=1
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = x, Poll: Note T_1
8	←		STATUS PDU	ACK SN 0 to SN x
9	→		UPLINK RLC PDU	SN = x+1
10	→		…	SS continues to receive RLC PDUs
11	→		UPLINK RLC PDU	SN = x + ceil(T/TTI), Poll: Note T_2
12	←		STATUS PDU	NAK SN x+1 to SN x + ceil(T/TTI)-1
13	→		UPLINK RLC PDU	PDUs including some retransmissions
14	→		UPLINK RLC PDU	
15	→		…	SS continues to receive RLC PDUs
16	→		UPLINK RLC PDU	Poll: Note T_3
17	←		STATUS PDU	Normal
18	→		…	SS continues to receive RLC PDUs
19	→		UPLINK RLC PDU	Poll: Note T_4
20			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes. NOTE 2: The value of x may be different for each iteration.				

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

~~NOTE: The value of x may be different for each iteration.~~

7.2.3.19.5 Test requirements

No PDUs shall be received from the UE for 2*T ms before step 1.

x <= ceil (T/TTI).

Time $T_2 – T_1$ shall be T.

Time $T_3 – T_2$ shall be T.

Time $T_4 – T_3$ shall be T.

7.2.3.20 Polling for status / Polling on Poll_Window% of transmission window

7.2.3.20.1 Definition

This case tests that the UE will poll for a status request when it has reached Poll_Window% of the transmission window, when that mode is enabled. Incorrect operation of polling will cause degradation of service, or at worst service failure.

This test applies to all UE.

7.2.3.20.2 Conformance requirement

1. A poll is triggered for each AMD PDU when $J \geq$ Poll_Window, where J is the window transmission percentage defined by

$$J = \frac{(4096+VT(S)+1-VT(A))\ \mathbf{mod}\ 4096}{VT(WS)} * 100\ ,$$

   where the constant 4096 is the modulus for AM described in 3GPP TS 25.322 subclause 9.4 and VT(S) is the value of the variable before the AMD PDU is submitted to lower layer.

2. The Polling function is used by the Sender to request the peer RLC entity for a status report. The "Polling bit" in the AMD PDU indicates the poll request. There are several triggers for initiating the Polling function. Which of the triggers shall be used is configured by upper layers for each RLC entity. The following triggers can be configured:

   …….

   6) Window based.

      The Sender triggers the Polling function when the condition described in subclause 9.6 d) ("Poll_Window") is fulfilled.

3. The Sender shall:

   - if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
     - if polling is not prohibited, see subclause 9.5:
       - set the "Polling bit" in the AMD PDU header to "1".

Reference

25.322 clauses 9.6, 9.7.1 and 11.3.2.1.1.

7.2.3.20.3 Test purpose

To verify that the UE polls the SS when the window based polling condition J >= Poll_Window is fulfilled.

7.2.3.20.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Polling info Last transmission PDU poll Poll_Window Transmission window size	 FALSE 50 8
Downlink RLC Receiving window size	 8

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let W be the size of the transmission window.

a) The SS transmits (W/2) + 2 RLC SDUs of size AM_7_PayloadSize - 1 bytes.

b) The SS checks the sequence number of the first three uplink PDUs received with the P bit set.

c) The SS sends another RLC SDU of size AM_7_PayloadSize - 1 bytes.

d) The SS checks the sequence number of the next uplink PDU received with the P bit set.

e) The SS waits until no more new PDUs are received.

f) The SS sends a STATUS PDU acknowledging the received RLC PDUs with SN = 0 through W/2, followed by two further RLC SDUs.

g) The SS checks the sequence number of the next uplink PDU received with the P bit set.

h) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU W/2+2
4	→		UPLINK RLC PDU	SDU 1, SN=0
5	→		UPLINK RLC PDU	SDU 2, SN=1
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = W/2-1, Poll
7a	→		UPLINK RLC PDU	SN = W/2, Poll
7b	→		UPLINK RLC PDU	SN = W/2 +1, Poll
8	←		DOWNLINK RLC PDU	SDU W/2 + 3
9	→		UPLINK RLC PDU	SN = W/2 + 2, Poll
9a				SS waits 10 ~~s~~TTI periods to ~~secure~~ ensure no more new PDUs are received
10	←		STATUS PDU	ACK SN 0 to W/2 (UE sets VT(A) to W/2+1)
11	←		DOWNLINK RLC PDU	SDU W/2 + 4
12	←		DOWNLINK RLC PDU	SDU W/2 + 5
13	→		UPLINK RLC PDU	SN = W/2+3
14	→		UPLINK RLC PDU	SN = W/2+4, Poll
15			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.20.5 Test requirements

The SS shall receive RLC PDUs with the P bit set in PDUs with sequence numbers of 3, 4, 5, 6 and 8. No other PDUs ~~should~~ shall have their P bits set.

7.2.3.21 Polling for status / Operation of Timer_Poll timer / Timer expiry

7.2.3.21.1 Definition

This case tests that the UE will retransmit a poll for status if it does not receive a STATUS PDU within Timer_Poll ms after a poll for status is transmitted. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.21.2 Conformance requirement

Timer_Poll.

This timer shall only be used when so configured by upper layers. The value of the timer is signalled by upper layers. In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer. In UTRAN it should be started when an AMD PDU containing a poll is submitted to lower layer. If x is the value of the state variable VT(S) after the poll was submitted to lower layer, the timer shall be stopped upon receiving:

- positive acknowledgements for all the AMD PDUs with "Sequence Number" up to and including x - 1; or
- a negative acknowledgement for the AMD PDU with "Sequence Number" = x - 1.

If the timer expires and no STATUS PDU fulfilling the criteria above has been received:

- the Receiver shall be polled once more;
- the timer shall be restarted; and
- the new value of VT(S) shall be saved.

If a new poll is sent when the timer is active, the timer shall be restarted at the time specified above, and the value of VT(S) shall be saved.

[...]

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

~~The Polling bit shall be set to 1 if any of following conditions are fulfilled except when the poll prohibit function is used and the timer Timer_Poll_Prohibit is active.~~

~~…~~

~~3) Poll timer is used and timer Timer_Poll has expired.~~

~~Upon expiry of the Timer_Poll the sender shall retransmit the poll. The poll can be retransmitted in either a new PDU or a retransmitted PDU.~~

Reference

TS 25.322 clauses 11.3.2.1.1 and 11.3.4.1.

7.2.3.21.3 Test purpose

~~1.~~ To verify that if the timer expires and no STATUS PDU containing an acknowledgement or negative acknowledgement of the AMD PDUs up to that which triggered the timer has been received, the receiver is polled once more.

7.2.3.21.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Last transmission PDU poll	FALSE	FALSE
Timer_poll	500	1000
Timer_Poll_Periodic	2000	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of the Timer_Poll_Periodic timer.

a) The SS transmits at least 2 * T / TTI SDUs of size AM_7_PayloadSize - 1 bytes.

b) The SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set, but does not respond. This time will be recorded as $T_{1.}$

c) The SS continues to receive PDUs from the UE and notes the time on receipt of the next PDU with the P bit set. This time will be recorded as T_2.

d) The SS may optionally release the radio bearer.

The test case is run once for each set of initial RLC parameters.

Expected sequence

Step	Direction UE SS	Message	Comments
1	←	DOWNLINK RLC PDU	SDU 1
2	←	…	SS continues to transmit RLC SDUs
3	←	DOWNLINK RLC PDU	SDU ceil(2T/TTI)
4	→	UPLINK RLC PDU	SDU 1
5	→	UPLINK RLC PDU	SDU 2
6	→	…	SS continues to receive RLC PDUs
7	→	UPLINK RLC PDU	SN = ceil(T/TTI), Poll: Note T_1
8	→	UPLINK RLC PDU	SN = ceil(T/TTI)+1
9	→	…	SS continues to receive RLC PDUs
10	→	UPLINK RLC PDU	Poll: Note T_2
11		RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.21.5 Test requirements

For the first run, the measured time $T_2 - T_1$ ~~should~~ shall be 500 ms.

For the second run, the measured time $T_2 - T_1$ ~~should~~ shall be 1000 ms.

7.2.3.22 Polling for status / Operation of Timer_Poll timer / Stopping Timer_Poll timer

7.2.3.22.1 Definition

This case tests that the UE will stop the Timer_Poll timer if it receives a STATUS PDU within Timer_Poll ms after a poll for status is transmitted. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.22.2 Conformance requirement

Timer_Poll.

This timer shall only be used when so configured by upper layers. The value of the timer is signalled by upper layers. In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer. In UTRAN it should be started when an AMD PDU containing a poll is submitted to lower layer. If x is the value of the state variable VT(S) after the poll was submitted to lower layer, the timer shall be stopped upon receiving:

- positive acknowledgements for all the AMD PDUs with "Sequence Number" up to and including x - 1; or
- a negative acknowledgement for the AMD PDU with "Sequence Number" = x - 1.

If the timer expires and no STATUS PDU fulfilling the criteria above has been received:

- the Receiver shall be polled once more;
- the timer shall be restarted; and
- the new value of VT(S) shall be saved.

If a new poll is sent when the timer is active, the timer shall be restarted at the time specified above, and the value of VT(S) shall be saved.

[...]

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

~~The timer is stopped when receiving a STATUS PDU that contains an acknowledgement of all AMD PDUs with SN up to and including VT(S)-1 at the time the poll was submitted to lower layer,or when a negative acknowledgement of the same PDU is received.~~

Reference

TS 25.322 clause 9.5.

7.2.3.22.3 Test purpose

~~1.~~ To verify that the Timer_Poll timer is stopped when receiving a STATUS PDU that acknowledges all AMD PDUs with SN up to and including VT(S)-1 at the time the poll was transmitted.

7.2.3.22.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~"Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	First run	Second run
Polling info		
Last transmission PDU poll	FALSE	FALSE
Timer_poll	500	1000
Timer_Poll_Periodic	2000	2000

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of the Timer_Poll_Periodic timer.

a) The SS transmits at least 2 * T / TTI SDUs of size AM_7_PayloadSize - 1 bytes.

b) The SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set. This time will be recorded as $T_{1.}$

c) The SS sends a STATUS PDU acknowledging all the PDUs up to and including the PDU carrying the poll request.

d) The SS continues to receive PDUs from the UE and notes the time on receipt of the next PDU with the P bit set. This time will be recorded as T_2.

e) The SS may optionally release the radio bearer.

The test case is run once for each set of initial RLC parameters.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1	←	DOWNLINK RLC PDU	SDU 1
2	←	…	SS continues to transmit RLC SDUs
3	←	DOWNLINK RLC PDU	SDU ceil(2T/TTI)
4	→	UPLINK RLC PDU	SDU 1
5	→	UPLINK RLC PDU	SDU 2
6	→	…	SS continues to receive RLC PDUs
7	→	UPLINK RLC PDU	SN = ceil(T/TTI), Poll: Note T_1
8	←	STATUS PDU	ACK SN 0 to SN ceil(T/TTI)
9	→	UPLINK RLC PDU	SN = ceil(T/TTI)+1
10	→	…	SS continues to receive RLC PDUs
11	→	UPLINK RLC PDU	SN = ceil(2T/TTI), Poll: Note T_2
12		RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.			

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.22.5 Test requirements

For both execution runs, the measured time $T_2 - T_1$ ~~should~~ shall be 2000 ms.

7.2.3.23 Polling for status / Operation of Timer_Poll timer / Restart of the Timer_Poll timer

7.2.3.23.1 Definition

This case tests that the UE will restart the Timer_Poll timer if another poll request is transmitted whilst the timer is running. Incorrect operation of polling will cause degradation of service, or possible service failure.

This test applies to all UE.

7.2.3.23.2 Conformance requirement

Timer_Poll.

This timer shall only be used when so configured by upper layers. The value of the timer is signalled by upper layers. In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer. In UTRAN it should be started when an AMD PDU containing a poll is submitted to lower layer. If x is the value of the state variable VT(S) after the poll was submitted to lower layer, the timer shall be stopped upon receiving:

- positive acknowledgements for all the AMD PDUs with "Sequence Number" up to and including x - 1; or
- a negative acknowledgement for the AMD PDU with "Sequence Number" = x - 1.

If the timer expires and no STATUS PDU fulfilling the criteria above has been received:

  - the Receiver shall be polled once more;
  - the timer shall be restarted; and
  - the new value of VT(S) shall be saved.

If a new poll is sent when the timer is active, the timer shall be restarted at the time specified above, and the value of VT(S) shall be saved.

[...]

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

~~The timers defined in this subclause are normative. The timers shall be considered active from the time they are started until the time they either expire or are stopped.~~

~~a) Timer_Poll.~~

~~…~~

~~If a new poll is sent when the timer is active, the timer shall be restarted at the time specified above, and the value of VT(S) shall be saved.~~

Reference

TS 25.322 clause 9.5.

7.2.3.23.3 Test purpose

~~1.~~ To verify that if a new poll is sent when the timer is running it is restarted.

7.2.3.23.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Last transmission PDU poll	FALSE
Timer_poll	200
Poll_Window	60
Poll_PDU	~~8~~16
Transmit window size	32

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of the Timer_Poll timer.

a) The SS starts transmission of 2*Poll_PDU + ceil(T / TTI) numbers of SDUs of size AM_7_PayloadSize - 1bytes.

b) Whilst transmitting, the SS receives PDUs from the UE, until it receives the second PDU with the P bit set. (Note: poll due to Poll_Window).

c) The SS sends a STATUS PDU acknowledging all the PDUs received so far.

d) The SS continues to receive consecutive PDUs with the poll bit set until a PDU is received without the poll bit set. The time the last PDU with the poll bit set was received is recorded as $T_{1.}$

e) The SS continues to receive PDUs from the UE and notes the time on receiption of the next PDU with the P bit set. This time will be recorded as T_2.

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	2* Poll_PDU + ceil(T / TTI) numbers of SDUs are sent.
4	→		UPLINK RLC PDU	SDU 1
5	→		UPLINK RLC PDU	SDU 2
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = poll_PDU - 1, 1st Poll, Timer_Poll started
8	→		Void	
9			Void	
10	→		UPLINK RLC PDU	SS continues to receive RLC PDUs
11	→		UPLINK RLC PDU	SN= ceil(Tx_Window_Size * 60%)-1, 2nd Poll, Timer_Poll restarted: Note T1
12	←		STATUS PDU	ACK SN 0 to SN = ceil(Tx_Window_Size * 60%)-1
13	→		UPLINK RLC PDU	SN = ceil(Tx_Window_Size * 60%), Poll, Timer_Poll restarted: Note T1
14	→		…	SS continues to receive RLC PDUs. If poll bit is set in consecutive PDUs then note new value of T1 until a PDU without a poll bit set is received.
15	→		UPLINK RLC PDU	SN = ceil(Tx_Window_Size * 60%) + ceil(T / TTI) -1, 3rd Poll, Timer_Poll expired: Note T_2
16			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.23.5 Test requirements

The measured time $T_2 – T_1$ shall be 200 ms.

7.2.3.24 Polling for status / Operation of timer Timer_Poll_Prohibit

7.2.3.24.1 Definition

This case tests that the UE will not send a poll request within Timer_Poll_Prohibit ms of a previous poll request when this mode of operation is enabled. Incorrect operation of polling will cause degradation of service, or possible service failure.

7.2.3.24.2 Conformance requirement

The timers defined in this subclause are normative. The timers shall be considered active from the time they are started until the time they either expire or are stopped.

b) Timer_Poll_Prohibit.

   This timer shall only be used when so configured by upper layers. It is used to prohibit transmission of polls within a certain period. The value of the timer is signalled by upper layers.

   In the UE this timer shall be started when the successful or unsuccessful transmission of an AMD PDU containing a poll is indicated by lower layer. In UTRAN it should be started when an AMD PDU containing a poll is submitted to lower layer.

   From the time a poll is triggered until the timer expires, polling is prohibited. If another poll is triggered while polling is prohibited, its transmission shall be delayed until the timer expires (see subclause 9.7.1). Only one poll shall be transmitted when Timer_Poll_Prohibit expires even if several polls were triggered in the meantime. This timer shall not be affected by the reception of STATUS PDUs.

   When Timer_Poll_Prohibit is not configured by upper layers, polling is never prohibited.

The Sender shall:

- if a poll has been triggered by one or several poll triggers (see subclause 9.7.1):
  - if polling is not prohibited, see subclause 9.5:
    - set the "Polling bit" in the AMD PDU header to "1";
- otherwise:
  - set the "Polling bit" in the AMD PDU header to "0".

Reference

TS 25.322 clauses 9.5, 9.7.1 and 11.3.2.1.1.

7.2.3.24.3 Test purpose

1. To verify that no poll is transmitted if one or several polls are triggered when the Timer_Poll_Prohibit timer is active and has not expired.
2. To verify that the UE polls only once after Timer_Poll_Prohibit expires even though triggered several times during the prohibit time.

7.2.3.24.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Timer_poll_prohibit	500
Last transmission PDU poll	FALSE
Poll_PDU	4
Poll_Window	50
Transmission window size	32
Downlink RLC	
Receiving window size	128

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize - 1 bytes.

Test procedure

Let T be the value of the Timer_Poll_Prohibit timer.

a) The SS starts transmission of at least (2*Poll_PDU) + ceil(T / TTI) SDUs of size AM_7_PayloadSize - 1 bytes.

b) Whilst transmitting, the SS receives PDUs from the UE, and notes the time on receiving the first PDU with the P bit set. This time will be recorded as T_1.

c) The SS does not respond to the poll request.

d) The SS continues to receive PDUs from the UE and notes the time on receipt of the next PDU with the P bit set. This time will be recorded as T_2.

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU (2*Poll_PDU)+ ceil(T/TTI)
4	→		UPLINK RLC PDU	SDU 1
5	→		UPLINK RLC PDU	SDU 2
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SN = Poll_PDU - 1, Poll: Note T_1
8	→		…	SS continues to receive RLC PDUs
9			Void	
10	→		UPLINK RLC PDU	SN = (Transmission Window Size / 2) – 1, No Poll
11	→		…	SS continues to receive RLC PDUs
12	→		UPLINK RLC PDU	SN = Poll_PDU + ceil(T/TTI) - 1, Poll: Note T_2
12a	→		…	SS continues to receive RLC PDUs
13			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.24.5 Test requirements

1. The measured time $T_2 - T_1$ shall be Timer_poll_prohibit ms.
2. Only one poll shall be received from the UE after step 7, the poll in step 12.
3. After step 12 no further poll shall be received from the UE for the next Timer_poll_prohibit ms.

7.2.3.25 Receiver Status Triggers / Detection of missing PDUs

7.2.3.25.1 Definition

This case tests that the UE transmits a status report whenever it detects that a PDU is missing, if this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.25.2 Conformance requirement

Detection of missing PDU(s).

If the Receiver detects one or several missing AMD PDUs it shall trigger the transmission of a status report to the Sender.~~The receiver in any of following cases initiates this procedure … Detection of missing PDUs is used and a missing PDU is detected.~~

Reference

TS 25.322 clause 9.7.2~~11.5.2~~.

7.2.3.25.3 Test purpose

~~1.~~ To verify that a status report is transmitted if there are one or more missing PDUs.

7.2.3.25.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~”Length Indicator” tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS transmits 7 SDUs, each of size AM_7_PayloadSize - 1 bytes, in PDUs with consecutive sequence numbers starting from 0, followed by 5 SDUs in PDUs with consecutive sequence numbers starting from 8, followed by an SDU in a PDU with a sequence number of 15.

b) While transmitting, the SS monitors the uplink for STATUS PDUs.

c) The SS may optionally release the radio bearer

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1	←		DOWNLINK RLC PDU	SN = 0
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SN = 6
4	←		DOWNLINK RLC PDU	SN = 8
5	→		STATUS PDU	SN = 7 missing
6	←		DOWNLINK RLC PDU	
7	←		…	SS continues to transmit ~~receive~~ RLC ~~P~~SDUs
8	←		DOWNLINK RLC PDU	SN = 12
9	←		DOWNLINK RLC PDU	SN = 15
10	→		STATUS PDU	SN = 7, 13, 14 missing
11			RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.

7.2.3.25.5 Test requirements

A STATUS PDU ~~should~~ shall be received from the UE after step 4, indicating that the PDU with sequence number 7 was missing.

A STATUS PDU ~~should~~ shall be received from the UE after step 9, indicating that the PDUs with sequence numbers 7, 13 and 14 were missing.

7.2.3.26 Receiver Status Triggers / Operation of timer Timer_Status_Periodic

7.2.3.26.1 Definition

This case tests that the UE transmits a status report every Timer_Status_Periodic ms when this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.26.2 Conformance requirement

This timer shall only be used when timer based status reporting is configured by upper layers.

This timer shall be started when the RLC entity is created. When the timer expires the transmission of a status report shall be triggered and the timer shall be restarted..~~The timer is started when the successful or unsuccessful transmission of the last STATUS PDU in a status report is indicated by lower layer.~~

~~The receiver in any of following cases initiates this procedure … The timer based STATUS transfer is used and the timer Timer_Status_Periodic has expired.~~

Reference

TS 25.322 clauses 9.5, 9.7.2 and 11.5.2.

7.2.3.26.3 Test purpose

~~1.~~ To verify that a status report is transmitted each time the Timer_Status_Periodic timer expires.

7.2.3.26.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~”Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC Timer_STATUS_periodic	100

These settings apply to both the uplink and downlink DTCH.

Test procedure

Let T be the value of the Timer_STATUS_periodic timer.

a) The SS starts transmission of at least ceil(2 * T / TTI) SDUs of size AM_7_PayloadSize - 1 bytes.

b) The SS waits to receive a STATUS PDU and notes the time. This time will be recorded as T_1.

c) The SS waits to receive a second STATUS PDU and notes the time. This time will be recorded as T_2.

d) The SS may optionally release the radio bearer.

Expected sequence

<table>
<tr><th rowspan="2">Step</th><th colspan="2">Direction</th><th rowspan="2">Message</th><th rowspan="2">Comments</th></tr>
<tr><th>UE</th><th>SS</th></tr>
<tr><td>1</td><td colspan="2">←</td><td>DOWNLINK RLC PDU</td><td>SDU 1</td></tr>
<tr><td>2</td><td colspan="2">←</td><td>…</td><td>SS continues to transmit RLC SDUs</td></tr>
<tr><td>3</td><td colspan="2">←</td><td>DOWNLINK RLC PDU</td><td>SDU m~~ceil(T/TTI)-1~~</td></tr>
<tr><td>4</td><td colspan="2">→</td><td>STATUS PDU</td><td>Note T_1</td></tr>
<tr><td>5</td><td colspan="2">←</td><td>DOWNLINK RLC PDU</td><td></td></tr>
<tr><td>6</td><td colspan="2">←</td><td>…</td><td>SS continues to transmit ~~receive~~ RLC ~~P~~SDUs</td></tr>
<tr><td>7</td><td colspan="2">←</td><td>DOWNLINK RLC PDU</td><td>SDU m + ceil(~~2~~T/TTI)~~-1~~</td></tr>
<tr><td>8</td><td colspan="2">→</td><td>STATUS PDU</td><td>Note T_2</td></tr>
<tr><td>9</td><td colspan="2"></td><td>RB RELEASE</td><td>Optional step</td></tr>
<tr><td colspan="5">NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.</td></tr>
</table>

7.2.3.26.5 Test requirements

The measured time $T_2 – T_1$ ~~should~~ shall be 100 ms.

7.2.3.27 Receiver Status Triggers / Operation of timer Timer_Status_Prohibit

7.2.3.27.1 Definition

This case tests that the UE does not transmit~~s~~ a status report more often than every Timer_Status_Prohibit ms when this mode of operation is enabled. Incorrect operation of status reporting will cause degradation of service, or possible service failure.

7.2.3.27.2 Conformance requirement

In the UE, this timer shall be started when the successful or unsuccessful transmission of the last STATUS PDU of an acknowledgement status report is indicated by lower layer

[...]

When a status report is triggered the Receiver shall:

- if transmission of status reports is not prohibited by any of the functions "STATUS prohibit" or "EPC mechanism":
  - assemble and transmit the status report to the Sender, as specified in subclauses TS 25.322 11.5.2.2 and 11.5.2.3.
- otherwise (if the status report is prohibited by at least one of the functions "STATUS prohibit" or "EPC mechanism"):

    [...]

  - if ACK, LIST, BITMAP, or RLIST SUFIs are required in the status report:

- delay sending these SUFIs until the prohibit function terminates.

[...]

Upon expiry of the timer Timer_Status_Prohibit [...], the Receiver shall:

- if at least one status report was triggered during the time the transmission of a status reports was prohibited that could not be transmitted due to prohibition; and
- if transmission of a status reports is no longer prohibited by any of the functions "STATUS prohibit" or "EPC mechanism":
  - transmit one status report to the Sender, using the procedure described in subclause TS 25.322 11.5.2.3.

~~The sending of a status report shall be delayed, if … STATUS prohibit is used and the timer Timer_Status_Prohibit is active.~~

~~The status report shall be transmitted after the Timer_Status_Prohibit has expired. The receiver shall send only one status report, even if there are several triggers when the timer is active. The rules for when the timer Timer_status_Prohibit is active are defined in 3GPP TS 25.322 clause 9.5.~~

Reference

TS 25.322 clause 9.7.2~~11.5.2~~.

7.2.3.27.3 Test purpose

1. To verify that a status report is not transmitted while the Timer_Status_Prohibit timer is active.
2. To verify that only one status report is sent on the expiry of the Timer_Status_Prohibit timer if several triggers occur while it is active.

7.2.3.27.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit “Length Indicator”~~length indicator~~ tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Downlink RLC	
Timer_Status_Prohibit	500
Timer_STATUS_periodic	200

These settings apply to both the uplink and downlink DTCH.

Test procedure

Let T_{pro} be the value of the Timer_Status_Prohibit timer, and T_{per} be the value of the Timer_Status_Periodic timer.

a) The SS starts transmission of at least ceil(2 * T_{pro} / TTI) + ceil(T_{per}/TTI) SDUs of size AM_7_PayloadSize - 1 bytes.

b) Whilst transmitting, the SS monitors the uplink for a STATUS PDU and notes the time. This time will be recorded as T_1.

c) The SS sets the P bit in one of the next floor(T_{pro}/TTI) PDUs transmitted on the~~a~~ downlink.~~ PDU transmitted within the next floor(T_{pro}/TTI) PDUs.~~

d) The SS waits to receive a second STATUS PDU and notes the time. This time will be recorded as T_2.

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		…	SS continues to transmit RLC SDUs
3	←		DOWNLINK RLC PDU	SDU m~~ceil(T_{per}/TTI)~~
4	→		STATUS PDU	Note T_1
5	←		DOWNLINK RLC PDU	Poll
6	←		…	SS continues to transmit RLC PDUs
7	←		DOWNLINK RLC PDU	SDU m + ceil(T_{pro} / TTI)~~ + ceil(T_{per}/TTI)~~
8	→		STATUS PDU	Note T_2
9			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.27.5 Test requirements

1. The measured time $T_2 – T_1$ ~~should~~ shall be 500 ms.
2. Only one STATUS PDU shall be received in step 8, after Timer_Status_Prohibit expiry.

7.2.3.28 Status reporting / Abnormal conditions / Reception of LIST SUFI with Length set to zero

7.2.3.28.1 Definition

Peer RLCs use STATUS PDUs to manage flow control and retransmission. On a STATUS report PDU with an invalid LIST SUFI the RLC must behave as specified. Incorrect behaviour may result in degradation of QoS, or failure of the UE to communicate.

7.2.3.28.2 Conformance requirement

The List super-field

The List Super-Field consists of a type identifier field (LIST), a list length field (LENGTH) and a list of LENGTH number of pairs as shown in figure 9.11 below:

Type = **LIST**
LENGTH
SN_1
L_1
SN_2
L_2
...
SN_{LENGTH}
L_{LENGTH}

Figure 9.11: The List fields in a STATUS PDU

LENGTH

Length: 4 bits

The number of (SN_i, L_i)-pairs in the super-field of type LIST. The value "0000" is invalid and the list is discarded.

Reference

TS 25.322 clause 9.2.2.11.4.

7.2.3.28.3 Test purpose

To verify that if a STATUS PDU is received with a LIST SUFI and the LENGTH field is set to "0000" that the list is discarded.

7.2.3.28.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~”Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Polling info	
Poll_PDU	4

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (3 * Poll_PDU * AM_7_PayloadSize) – 1 bytes.

Test procedure

a) The SS sends an SDU of size (AM_7_PayloadSize) – 1.

b) The SS monitors the received (looped back) PDUs for a poll request.

c) The SS responds to the poll request by transmitting a STATUS PDU with a LIST SUFI. The list contains an indication that two PDUs were not received, but has the length field set to "0000".

d) The SS continues to monitor the received PDUs to verify that none are retransmitted.

e) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction UE SS	Message	Comments
1	←	DOWNLINK RLC PDU	SDU 1 (start)
2	←	…	SS continues to transmit RLC PDUs
3	←	DOWNLINK RLC PDU	SDU 1 (end)
4	→	UPLINK RLC PDU	SDU 1 (start)
5	→	UPLINK RLC PDU	
6	→	…	SS continues to receive RLC PDUs
7	→	UPLINK RLC PDU	SN = Poll_PDU - 1, Poll
8	←	STATUS PDU	LIST(LENGTH = "0000", SN = 1, SN = 2)
9	→	…	SS continues to receive RLC PDUs
10	→	UPLINK RLC PDU	Poll
11	←	STATUS PDU	Normal reply
12	→	…	SS continues to receive RLC PDUs
13	→	UPLINK RLC PDU	SDU 1 (end)
14		RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.			
~~NOTE: The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~			

7.2.3.28.5 Test requirements

No RLC PDUs ~~should~~ shall be retransmitted by the UE.

7.2.3.29 Timer based discard, with explicit signalling / Expiry of Timer_Discard

7.2.3.29.1 Definition

This case tests that when the transmission of an SDU exceeds a time limit, the SDU is discarded by the sender, and the discard is signalled to the receiver. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.29.2 Conformance requirement

If the transmission time exceeds a predefined value for a SDU in acknowledged mode RLC, this SDU is discarded in the transmitter and a Move Receiving Window (MRW) command is sent to the receiver so that AMD PDUs carrying that SDU are discarded in the receiver and the receiver window is updated accordingly.

This procedure is initiated by the sender when the following conditions are fulfilled … Timer based SDU discard with explicit signalling is used, and Timer_Discard expires for an SDU.

This status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

The STATUS PDUs have higher priority than data PDUs.

Reference

TS 25.322 clauses 9.7.3.1, 11.3.4.3.1 and 11.6.

7.2.3.29.3 Test purpose

1. To verify that if the transmission time for an SDU exceeds Timer_Discard, the SDU is discarded in the transmitter and the MRW procedure is invoked.
2. ...

7.2.3.29.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ”Length Indicator”~~length indicator~~ tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
Timer based with explicit signalling	
Timer_MRW	500
Timer_Discard	1000
MAX_MRW	4

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize – 1 bytes.

Test procedure

a) The SS sends at least 2 RLC SDUs of size AM_7_PayloadSize – 1bytes.

b) The SS notes the time that the first RLC PDU is received on the uplink. This time will be recorded as T_1.

c) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

d) The SS monitors received STATUS PDUs for the presence of a MRW SUFI, noting the time it was received. This time will be recorded as T_2.

e) The SS responds to the MRW command with a correct MRW_ACK.

f) Void.

g) The SS may optionally release the radio bearer.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 2
3	→		UPLINK RLC PDU	SDU 1: Note T_1
4	→		…	SS continues to receive RLC PDUs
5	→		UPLINK RLC PDU	SDU 2 + Poll
6	←		STATUS PDU	NAK SN=0
7	→		…	SS continues to receive RLC PDU with SN=0 + Poll
8	←		…	STATUS PDU, SS continues to NAK PDU with SN=0
9	→		STATUS PDU	MRW Command: Note T_2
10	←		STATUS PDU	MRW_ACK
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.29.5 Test requirements

1. The measured time $T_2 - T_1$ ~~should~~ shall be 1000 ms.
2. The STATUS PDU received in step 9 shall contain a MRW SUFI indicating that the first three PDUs ~~should~~ shall be discarded, and that the data indicated in the fourth PDU by the first LI ~~should~~ shall also be discarded.

7.2.3.29a Timer based discard, with explicit signalling / Expiry of Timer_Discard when Timer_STATUS_prohibit is active

7.2.3.29a.1 Definition

This case tests that when the transmission of an SDU exceeds a time limit, the SDU is discarded by the sender, and the discard is signalled to the receiver while the Timer_STATUS_Prohibit is active. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

This test applies to all UE.

7.2.3.29a.2 Conformance requirement

If the transmission time exceeds a predefined value for a SDU in acknowledged mode RLC, this SDU is discarded in the transmitter and a Move Receiving Window (MRW) command is sent to the receiver so that AMD PDUs carrying that SDU are discarded in the receiver and the receiver window is updated accordingly.

Upon expiry of Timer_Discard the sender shall initiate the SDU discard with explicit signalling procedure.

This status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

The STATUS PDUs have higher priority than data PDUs.

Reference

TS 25.322 clauses 9.7.3.1, 11.3.4.3.1 and 11.6.

7.2.3.29a.3 Test purpose

1. …

2. To verify that the MRW procedure status report is sent even if the 'STATUS prohibit' is used and the timer 'Timer_Status_Prohibit' is active.

7.2.3.29a.4 Method of test

TBD

7.2.3.29a.5 Test requirements

TBD

7.2.3.30 Timer based discard, with explicit signalling / Obsolete MRW_ACK

7.2.3.30.1 Definition

This case tests the ability of the receiving AM RLC entity to handle obsolete information that can be received during a failure of the SDU discard procedure. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.30.2 Conformance requirement

If Timer_MRW expires before the discard procedure is terminated,the MRW SUFI shall be retransmitted, VT(MRW) is incremented by one and Timer_MRW restarted. MRW SUFI shall be exactly the same as previously transmitted even though some new SDUs would have been discarded during the running of the Timer_MRW.

The received MRW_ACK shall be discarded in the following cases.

1. …
2. If the SN_ACK field in the received MRW_ACK < SN_MRW_{LENGTH} in the transmitted MRW SUFI.
3. If the SN_ACK field in the received MRW_ACK is equal to the SN_MRW_{LENGTH} in the transmitted MRW SUFI and the N field in the received MRW_ACK is not equal to the N_{LENGTH} field in the transmitted MRW SUFI
4. If the SN_ACK field in the received MRW_ACK > SN_MRW_{LENGTH} in the transmitted MRW SUFI and the N field in the received MRW_ACK is not equal to zero.

Reference

TS 25.322 clauses 11.6.5 and 11.6.6.3.

7.2.3.30.3 Test purpose

1. To verify that the MRW SUFI is retransmitted if Timer_MRW expires before a valid MRW_ACK is received.
2. To verify that the MRW_ACK is discarded if the SN_ACK field < SN_MRW_{LENGTH}.
3. To verify that the MRW_ACK is discarded if the N field is not equal to N_{LENGTH} transmitted in the MRW SUFI.
4. To verify that the MRW_ACK is discarded if the N field is not zero and the SN_ACK field > SN_MRW_{LENGTH} in the transmitted MRW SUFI.

7.2.3.30.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC	
Transmission RLC discard	
MaxDAT Retransmissions	
MaxDAT	40
Timer_MRW	500
MAX_MRW	4

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to AM_7_PayloadSize – 1bytes.

Test procedure

a) The SS sends at least 2 RLC SDUs of size AM_7_PayloadSize – 1bytes.

b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

c) The SS monitors received STATUS PDUs for the presence of a MRW SUFI, noting the time it was received. This time will be recorded as T_1.

d) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to SN_MRW_{LENGTH} – 1.

e) The SS monitors received STATUS PDUs for another MRW SUFI, noting the time it was received. This time will be recorded as T_2.

f) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to SN_MRW_{LENGTH}, and the N field set to (N_{LENGTH} + 1) modulo 4.

g) The SS monitors received STATUS PDUs for another MRW SUFI, noting the time it was received. This time will be recorded as T_3.

h) The SS responds to the MRW command with an MRW_ACK with the SN_ACK field set to SN_MRW_{LENGTH} + 1, and the N field set to 1.

i) The SS monitors received STATUS PDUs for another MRW SUFI.

j) The SS responds to the MRW command with a correct MRW_ACK.

k) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 2
3	→		UPLINK RLC PDU	SDU 1
4	→		UPLINK RLC PDU	SDU 2 + Poll
5	←		STATUS PDU	NAK SN=0
6	→		…	SS continues to receive RLC PDU with SN=0 + Poll
7	←		...	STATUS PDU, SS continues to NAK PDU with SN=0
8	→		STATUS PDU	MRW Command: Note T_1
9	←		STATUS PDU	MRW_ACK, SN_ACK = SN_MRW$_{LENGTH}$ – 1
10	→		STATUS PDU	MRW Command: Note T_2
11	←		STATUS PDU	MRW_ACK, N field = (N$_{LENGTH}$ + 1) modulo 4
12	→		STATUS PDU	MRW Command: Note T_3
13	←		STATUS PDU	MRW_ACK, SN_ACK = SN_MRW$_{LENGTH}$ + 1, N field = 1
14	→		STATUS PDU	MRW Command
15	←		STATUS PDU	MRW_ACK
16			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.30.5 Test requirements

1. The measured time $T_2 – T_1$ ~~should~~ shall be 500 ms.
2. The measured time $T_3 – T_2$ ~~should~~ shall be 500 ms.
3. The STATUS PDUs received in steps 8, 10, 12 and 14 shall contain an identical MRW SUFI.

7.2.3.31 Timer based discard, with explicit signalling / Failure of MRW procedure

7.2.3.31.1 Definition

This case tests that if a failure occurs during the signalling of an SDU discard to the receiver, the retransmission protocol operates correctly. SDU discard is used to keep network delays within limits, and incorrect operation will effect the quality of service.

7.2.3.31.2 Conformance requirement

If the number of retransmission of a MRW command (i.e. VT(MRW)) reaches MaxMRW, an error indication shall be passed to RRC and RESET procedure shall be performed.

Reference

TS 25.322 clause 11.6.6.2.

7.2.3.31.3 Test purpose

1. To verify that when the number of retransmissions of a MRW command reaches MaxMRW, an error indication is passed to RRC and RESET procedure is initiated.

7.2.3.31.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission RLC discard Timer based with explicit signalling	
Timer_MRW	500
Timer_Discard	500
Max_MRW	4
Polling info	
Poll_PDU	2

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1with the UL SDU size set to (2 * AM_7_PayloadSize) – 1bytes.

Test procedure

a) The SS sends 4 RLC SDUs of size (2 * AM_7_PayloadSize) – 1bytes.

b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests as follows: While the VR(H) is 4 or less, with a STATUS PDU, negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received. While the VR(H) is greater than 4, a STATUS PDU negatively acknowledging RLC PDUs with sequence numbers 0 and 4, and positively acknowledging all others.

c) The SS monitors received STATUS PDUs for the presence of an MRW SUFI, noting the time it was received. This time will be recorded as T_1.

d) The SS makes no response, but monitors for the next STATUS PDU containing an MRW SUFI, noting the time it was received. This time will be recorded as T_2.

e) The SS sends a STATUS PDU with an MRW_ACK indicating the discard of SDU 1 moving VR(R) to 4.

f) The SS monitors for further STATUS PDUs containing an MRW SUFI, or for a RESET PDU. The SS records the number of STATUS PDUs it received with MRW SUFI before it received the RESET PDU.

g) The SS checks any RLC SDUs reassembled from the uplink.

h) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 2
4	←		…	SS continues to send RLC PDUs
5	←		DOWNLINK RLC PDU	SDU 4
6	→		UPLINK RLC PDU	SDU 1
7	→		…	SS continues to receive RLC PDUs
8	→		UPLINK RLC PDU	Poll
9	←		STATUS PDU	NAK SN=0
10	→		…	SS continues to receive RLC PDUs
11	→		UPLINK RLC PDU	Poll
12	←		STATUS PDU	NAK SN=0, 4
13	→		…	SS continues to receive RLC PDUs
14	→		STATUS PDU	MRW Command: Note T_1
15	→		STATUS PDU	MRW Command: Note T_2
16	←		STATUS PDU	MRW_ACK indicating VR(R) = 4
17	→		STATUS PDU	MRW Command, discard SDU 3
18	→		STATUS PDU	MRW Command
19	→		STATUS PDU	MRW Command
20	→		STATUS PDU	MRW Command
21	→		RESET PDU	
22	←		RESET ACK PDU	
23			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.31.5 Test requirements

The measured time $T_2 - T_1$ ~~should~~ shall be 500 ms.

After step 17, the SS ~~should~~ shall detect 3 repeats of the MRW command sent in step 17 before a RESET PDU is sent.

7.2.3.32 SDU discard after MaxDAT number of retransmissions

7.2.3.32.1 Definition

This case tests that if a PDU is unsuccessfully transmitted MaxDAT times, the SDU it carries, and therefore all other associated PDUs, are discarded by the transmitter and receiver. This mode of SDU discard is used to minimize data loss, and incorrect operation will effect the quality of service.

7.2.3.32.2 Conformance requirement

There is one VT(DAT) for each PDU and it is incremented each time the PDU is transmitted. The initial value of this variable is 0.

If SDU discard after MaxDAT number of retransmission is used and VT(DAT) ≥ MaxDAT for any PDU, the sender shall initiate the SDU discard with explicit signalling procedure for the SDUs to which the PDU with VT(DAT) ≥MaxDAT belongs.

Reference

TS 25.322 clauses 9.4 and 11.3.4.4.

7.2.3.32.3 Test purpose

1. To verify that if VT(DAT) ≥ MaxDAT for any PDU the sender initiates the SDU discard with explicit signalling procedure.

7.2.3.32.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~“Length Indicator” tests in clause 7.2.3.1.

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) – 1 bytes.

Test procedure

a) The SS sends 2 RLC SDUs of size (2 * AM_7_PayloadSize) – 1 bytes.

b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

c) The SS monitors received STATUS PDUs for the presence of an MRW SUFI.

d) The SS responds with a STATUS PDU containing a valid MRW_ACK SUFI.

e) The SS checks any RLC SDUs reassembled from the uplink.

f) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 2
4	←		DOWNLINK RLC PDU	SDU 2
5	→		UPLINK RLC PDU	SDU 1
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SDU 2, Poll
8	←		STATUS PDU	NAK SN=0
9	→		UPLINK RLC PDU	Retransmit SN=0, Poll
10	←		STATUS PDU	NAK SN=0
11	→		UPLINK RLC PDU	Retransmit SN=0, Poll
12	←		STATUS PDU	NAK SN=0
13	→		UPLINK RLC PDU	Retransmit SN=0, Poll
14	←		STATUS PDU	NAK SN=0
15	→		STATUS PDU	MRW Command
16	←		STATUS PDU	MRW_ACK
17			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				
~~NOTE: The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~				

7.2.3.32.5 Test requirements

The uplink RLC PDU with sequence number 0 shall be retransmitted three times, then the SS shall detect a STATUS PDU with an MRW command.

7.2.3.33 Operation of the RLC Reset procedure / UE Originated

7.2.3.33.1 Definition

This case tests that when the maximum number of retransmissions is exceeded, the UE initiates and performs the RLC Reset procedure. Incorrect operation of this procedure may cause loss of service~~This case tests that when a protocol error is detected the UE will initiate and perform the RLC Reset procedure. Incorrect operation of this procedure may cause loss of service.~~

7.2.3.33.2 Conformance requirement

The Sender shall:

- if one of the following triggers is detected:

1) "No_Discard after MaxDAT number of retransmissions" is configured and VT(DAT) equals the value MaxDAT (see TS 25.322 subclause 9.7.3.4);

…

  - stop transmitting any AMD PDU or STATUS PDU;
  - increment VT(RST) by 1;
  - if VT(RST) = MaxRST:
    - the Sender may submit to the lower layer a RESET PDU;
    - perform the actions specified in TS 25.322 subclause 11.4.4a.

  - else (if VT(RST) < MaxRST):
    - submit a RESET PDU to the lower layer;
    - start the timer Timer_RST~~ and increase VT(RST) with 1~~.

NOTE: If the TFC selection exchange has been initiated by sending the RLC Entity Info parameter to MAC, the RLC entity may delay the RLC reset procedure until the end of the next TTI.

When a reset procedure has been initiated it can only be ended upon reception of a RESET ACK PDU with the same RSN value as in the corresponding RESET PDU, or upon request of re-establishment or release from upper layer, a reset procedure is not interrupted by the reception of a RESET PDU from the peer entity.

[...]

The Sender shall:

- set the HFNI field to the currently highest used HFN (DL HFN when the RESET PDU is sent by UTRAN or UL HFN when the RESET PDU is sent by the UE);
- set the RSN field to the sequence number of the RESET PDU. The sequence number of the first RESET PDU after the AM entity is established or re-established shall be "0". This sequence number is incremented every time a new RESET PDU is transmitted, but not when a RESET PDU is retransmitted.

[...]

Upon reception of a RESET ACK PDU, the Sender shall:

- if the Sender has already transmitted a RESET PDU which has not been yet acknowledged by a RESET ACK PDU:
  - if the received RSN value is the same as the one in the corresponding RESET PDU:
    - set the HFN value (DL HFN when the RESET ACK PDU is received in UE or UL HFN when the RESET ACK PDU is received in UTRAN) to the HFNI field of the received RESET ACK PDU;
    - reset the state variables described in subclause 9.4 to their initial values;
    - stop all the timers described in subclause 9.5;
    - reset configurable parameters to their configured values;
    - discard all RLC PDUs in the receiving side of the AM RLC entity;
    - discard all RLC SDUs that were transmitted before the reset in the transmitting side of the AM RLC entity;
    - increase with one the UL HFN and DL HFN, and the updated HFN values shall be used for the first transmitted and received AMD PDUs after the reset procedure;
  - otherwise (if the received RSN value is not the same as the one in the corresponding RESET PDU):
    - discard the RESET ACK PDU;
- otherwise (if the Sender has not transmitted a RESET PDU which has not been yet acknowledged by a RESET ACK PDU):
  - discard the RESET ACK PDU.

NOTE: If the TFC selection exchange has been initiated by sending the RLC Entity Info parameter to MAC, the RLC entity may delay the RLC SDUs discard in the transmitting side until the end of the next TTI.

If Timer_RST expires before the reset procedure is terminated, the Sender shall:

- if VT(RST)<MaxRST-1:
  - set the RESET PDU as previously transmitted (even if additional SDUs were discarded in the mean-time);

  - transmit RESET PDU;
- increment VT(RST) by one;
- restart Timer_RST.

Reference

TS 25.322 clause 11.4.

7.2.3.33.3 Test purpose

1. To verify that the Reset procedure is initiated when the maximum number of retransmissions has been exceeded (Reset trigger condition 1) in subclause 11.4.2 of 3GPP TS 25.322 (R1999).~~To verify that the Reset procedure is initiated when a protocol error occurs~~.
2. To verify that the sender resets state variables to their initial value and resets configurable parameters to their configured value.
3. To verify that RSN is updated correctly.
4. To verify operation of Timer_RST.

7.2.3.33.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ”Length Indicator”~~length indicator~~ tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission RLC discard No discard Max_DAT	4

These settings apply to both the uplink and downlink DTCH.

The Radio Bearer is placed in UE test loop mode 1 with the UL SDU size set to (2 * AM_7_PayloadSize) – 1 bytes.

Test procedure

a) The SS sends 2 RLC SDUs of size (2 * AM_7_PayloadSize) – 1 bytes.

b) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

c) The SS notes the time that the RESET PDU is received. This time will be recorded as T_1. The SS notes the value of the RSN bit.

d) The SS makes no response, and notes the time that the next RESET PDU is received. This time will be recorded as T_2. The SS notes the value of the RSN bit.

e) The SS sends a RESET ACK PDU with the RSN bit set to the same value as received in the RESET PDU received in step d).

f) The SS sends an RLC SDU of size (2 * AM_7_PayloadSize) – 1bytes.

g) The SS checks the RLC PDUs received on the uplink and responds to all poll requests with a STATUS PDU negatively acknowledging the RLC PDU with sequence number 0, and positively acknowledging all other RLC PDUs received.

h) The SS notes the value of the RSN bit of the RESET PDU received.

i) The SS sends a RESET ACK PDU with the RSN bit set to the value received in the RESET PDU in step c (the incorrect value).

j) The SS waits to receive another RESET PDU and checks the RSN bit.

k) The SS sends a RESET ACK PDU with the correct RSN bit.

l) The SS checks any RLC SDU received on the uplink.

m) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 2
4	←		DOWNLINK RLC PDU	SDU 2
5	→		UPLINK RLC PDU	SDU 1
6	→		…	SS continues to receive RLC PDUs
7	→		UPLINK RLC PDU	SDU~~ 2~~, Poll The Poll may appear in returned PDU for either SDU 1 or 2
8	←		STATUS PDU	NAK SN=0
9	→		UPLINK RLC PDU	Retransmit PDU SN=0, Poll
10	←		STATUS PDU	NAK SN=0
11	→		UPLINK RLC PDU	Retransmit PDU SN=0, Poll
12	←		STATUS PDU	NAK SN=0
13			Void	
14			Void	
15	→		RESET PDU	Note T_1
16	→		RESET PDU	Note T_2, check RSN
17	←		RESET ACK PDU	
18	←		DOWNLINK RLC PDU	SDU 3
19	←		DOWNLINK RLC PDU	SDU 3
20	→		UPLINK RLC PDU	SDU 3, check PDU has SN=0
21	→		UPLINK RLC PDU	SDU 3, Poll
22	←		STATUS PDU	NAK SN=0
23	→		UPLINK RLC PDU	Retransmit SN=0, Poll
24	←		STATUS PDU	NAK SN=0
25	→		UPLINK RLC PDU	Retransmit SN=0, Poll
26	←		STATUS PDU	NAK SN=0
27			Void	
28			Void	
29	→		RESET PDU	Check RSN
30	←		RESET ACK PDU	RSN = 0
31	→		RESET PDU	Check RSN
32	←		RESET ACK PDU	RSN = 1
33			RB RELEASE	Optional step

NOTE 1: The Expected Sequence shown is infomative.
The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.
Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.~~NOTE: The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~

7.2.3.33.5 Test requirements

1. The measured time $T_2 - T_1$ ~~should~~ shall be 500 ms.

2. In steps 20 to 21 the SS shall receive an RLC SDU with contents that match the third RLC SDU sent to the UE. The first RLC PDU containing that SDU shall have sequence number 0.

3. The RSN bit of the first and second RESET PDUs received ~~should~~ shall be set to 0. The RSN bit of the third and fourth RESET PDU ~~should~~ shall be set to 1.

7.2.3.34 Operation of the RLC Reset procedure / UE Terminated

7.2.3.34.1 Definition

This case tests that the UE responds correctly to the RLC Reset procedure initiated by the network. Incorrect operation of this procedure may cause loss of service.~~This case tests that when an unrecoverable protocol error occurs the UE responds correctly to the RLC Reset procedure initiated by the network. Incorrect operation of this procedure may cause loss of service.~~

7.2.3.34.2 Conformance requirement

Upon reception of a RESET PDU the Receiver shall:

- if the RSN value in the RESET PDU is the same as the RSN value in the last received RESET PDU:
  - either only submit a RESET ACK PDU to the lower layer with the contents set exactly as in the last transmitted RESET ACK PDU (i.e., in this case the RLC entity is not reset); or
  - perform the actions specified below as if the RSN value was different from the RSN value in the last received RESET PDU.
- otherwise, if the RESET PDU is the first RESET PDU received since the entity was (re-)established or the RSN value is different from the RSN value in the last received RESET PDU:
  - submit a RESET ACK PDU to the lower layer with the content set as specified in subclause 11.4.3.1;
  - reset the state variables described in subclause 9.4 except VT(RST) to their initial values;
  - stop all the timers described in subclause 9.5 except Timer_RST;
  - reset configurable parameters to their configured values;
  - discard all RLC PDUs in the receiving side of the AM RLC entity;
  - discard all RLC SDUs that were transmitted before the reset in the transmitting side of the AM RLC entity;
  - set the HFN (DL HFN when the RESET PDU is received in UE or UL HFN when the RESET PDU is received in UTRAN) equal to the HFNI field in the received RESET PDU;
  - increase with one the UL HFN and DL HFN, and the updated HFN values shall be used for the first transmitted and received AMD PDUs after the reset procedure.

NOTE: If the TFC selection exchange has been initiated by sending the RLC Entity Info parameter to MAC, the RLC entity may delay the RLC SDUs discard in the transmitting side of the AM RLC entity until the end of the next TTI.

~~Upon reception of a RESET PDU the receiver shall respond with a RESET ACK PDU. The receiver resets the state variables to their initial value and resets configurable parameters to their configured value. Both the transmitter and receiver side of the AM RLC entity are reset. All RLC PDUs in the AM RLC receiver shall be discarded. The RLC SDUs in the AM RLC transmitter that were transmitted before the reset shall be discarded.~~

Reference

TS 25.322 clause 11.4.3.

7.2.3.34.3 Test purpose

1. To verify that upon reception of a RESET PDU the receiver responds with a RESET ACK PDU.
2. To verify that the receiver resets its state variables to their initial value and resets configurable parameters to their configured value.

7.2.3.34.4 Method of test

Initial conditions

The generic procedure for Radio Bearer establishment (clause 7.1.3 of TS 34.108) is executed, with all the parameters as specified in the procedure, with the exception that the default Radio Access Bearer is replaced with the RAB defined for AM 7-bit ~~length indicator~~"Length Indicator" tests in clause 7.2.3.1.

The following RLC parameter values are used in place of the values in clause 7.2.3.1:

Uplink RLC Transmission RLC discard No discard MaxDAT	 4

These settings apply to both the uplink and downlink DTCH.

Test procedure

a) The SS sends 2 RLC SDUs of size (2 * AM_7_PayloadSize) – 1 bytes, and polls on the last PDU sent.

b) The SS checks the STATUS PDUs received on the uplink until both SDUs have been acknowledged.

c) The SS transmits a RESET PDU.

d) The SS monitors the uplink for a RESET ACK PDU.

e) The SS sends an RLC SDU of size (2 * AM_7_PayloadSize) – 1 bytes, and polls on the last PDU sent.

f) The SS checks for STATUS PDUs received on the uplink until the SDU has been acknowledged.

g) The SS may optionally release the radio bearer.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		DOWNLINK RLC PDU	SDU 1
2	←		DOWNLINK RLC PDU	SDU 1
3	←		DOWNLINK RLC PDU	SDU 2
4	←		DOWNLINK RLC PDU	SDU 2, poll
5	→		STATUS PDU	ACK SN=0, 1, 2 and 3
6	←		RESET PDU	
7	→		RESET ACK PDU	
8	←		DOWNLINK RLC PDU	SDU 3
9	←		DOWNLINK RLC PDU	SDU 3, poll
10	→		STATUS PDU	ACK SN=0 and 1
11			RB RELEASE	Optional step
NOTE 1: The Expected Sequence shown is infomative. ~~The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity.~~ The UPLINK and DOWNLINK PDU flows may overlap, but are shown separate for clarity. Information such as SDU, PDU or Sequence numbers given in the comments column shall be considered informative only, for test case development purposes.				

7.2.3.34.5 Test requirements

1. The SS shall receive a RESET ACK PDU in step 7.
2. The SS shall receive a STATUS PDU in step 10 acknowledging for the third RLC SDU transmitted with PDUs starting at SN=0.

3GPP TSG- T1 Meeting #16
Yokohama, Japan, 2nd Aug 2002

T1-020519

3GPP TSG- T1 SIG Meeting #24
Yokohama, Japan, 29th – 1st Aug 2002

T1S-020479

CR-Form-v6.1

CHANGE REQUEST

⌘ **TS 34.123-1**	**CR 267**	⌘ **rev**	**-**	⌘ Current version:	**5.0.1** ⌘

Spec Title: User Equipment (UE) conformance specification;
Part 1: Protocol conformance specification ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘ Corrections to package1 test cases in clause 8.1 as T1S-020352rev1		
Source:	⌘ Panasonic		
Work item code:	⌘ TEI	***Date:*** ⌘	01/7/2002
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)*

Reason for change: ⌘

1. Ciphering activation time is TTI boundary for all mappping transport channels to the DPCH.(TS25.331V3b0 clause 8.6.3.1.)
2. As SIB message contents in TS34.108 were revised at the last T1SIG meeting, these are reflected into spesific message contents in TS34.123-1.
3. TC8.1.9 is renumbered to TC8.1.9.1 to add another test case in clause 8.1.9.
4. Update Conformance Requirement according to core specification 25.331.
5. Add generic procedure at the end of some test cases to verify the final state of the UE.

Corrections to T1S-020352

6. TC8.1.9.1 is renumbered again to TC8.1.9 to follow common procedure in T1SIG.

Summary of change: ⌘ **New corrections**

1. In step 6 of clause 8.1.7.1, the activation time for DPCH should be set to (256+CFN-(CFN MOD 8 + 8))MOD 256 instead of Current CFN + 225 so that calculated CFN is multiple of 8 because 80 ms is a multiple of all selected TTI.

2. In SYSTEM INFORMATION TYPE 5 (Step 1a) - (FDD) specific message content of clause 8.1.2.2 is revised according to TS34.108.
3. TC8.1.9 is changed to TC8.1.9.1 and some editorial corrections are added.
4. Conformance Requirement , Test Purpose and Reference are updated.
   → TC8.1.1.4, TC8.1.1.5, TC8.1.1.6, TC8.1.1.7, TC8.1.1.8, TC8.1.2.1, TC8.1.2.2, TC8.1.2.7, TC8.1.2.9, TC8.1.3.3, TC8.1.5.1, TC8.1.5.4, TC8.1.9.1
5. Generic procedure is added at the end of test cases to verify the final state of the UE.

   → TC8.1.2.1, TC8.1.2.7, TC8.1.3.1, TC8.1.3.3
6. A statement in test procedure of TC8.1.3.1 is reworded to give a clearer explanation.

The modification is added in T1S-020352 as below.

In clause 8.1.9.1

- The number is renumbered to 8.1.9. (Modification to TS34.123-1V501 is not required)

Consequences if not approved: ⌘ If changes are not approved, UE might not be properly tested.

Clauses affected: ⌘ Clause 8.1.1.4,8.1.1.5,8.1.1.6,8.1.1.7,8.1.2.1,8.1.2.2,8.1.2.7,8.1.2.9,8.1.3.1,8.1.3.3,8.1.5.1,8.1.5.4,8.1.7.1,8.1.9

Other specs affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ 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/3G_Specs/CRs.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 Radio Resource Control RRC

8.1 RRC Connection Management Procedure

8.1.1 Paging

8.1.1.1 Paging for Connection in idle mode

8.1.1.1.1 Definition

8.1.1.1.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

If the UE is in idle mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a CN identity:

  2> compare the IE "UE identity" with all of its allocated CN UE identities:

  2> if one match is found:

    3> indicate reception of paging; and

    3> forward the IE "CN domain identity", the IE "UE identity" and the IE "Paging cause" to the upper layers.

1> otherwise:

  2> ignore that paging record.

:

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

Upon initiation of the initial direct transfer procedure when the UE is in idle mode, the UE shall:

1> set the variable ESTABLISHMENT_CAUSE to the cause for establishment indicated by upper layers;

1> perform an RRC connection establishment procedure, according to subclause 8.1.3;

1> if the RRC connection establishment procedure was not successful:

  2> indicate failure to establish the signalling connection to upper layers and end the procedure.

1> when the RRC connection establishment procedure is completed successfully:

  2> continue with the initial direct transfer procedure as below.

Upon initiation of the initial direct transfer procedure when the UE is in CELL_PCH or URA_PCH state, the UE shall:

1> perform a cell update procedure, according to subclause 8.3.1, using the cause "uplink data transmission";

1> when the cell update procedure completed successfully:

  2> continue with the initial direct transfer procedure as below.

The UE shall, in the INITIAL DIRECT TRANSFER message:

1> set the IE "NAS message" as received from upper layers; and

1> set the IE "CN domain identity" as indicated by the upper layers; and

1> set the IE "Intra Domain NAS Node Selector" as follows:

  2> derive the IE "Intra Domain NAS Node Selector" from TMSI/PMTSI, IMSI, or IMEI; and

  2> provide the coding of the IE "Intra Domain NAS Node Selector" according to the following priorities:

1. derive the routing parameter for IDNNS from TMSI (CS domain) or PTMSI (PS domain) whenever a valid TMSI/PTMSI is available;

2. base the routing parameter for IDNNS on IMSI when no valid TMSI/PTMSI is available;

3. base the routing parameter for IDNNS on IMEI only if no (U)SIM is inserted in the UE.

1> calculate the START according to subclause 8.5.9 for the CN domain as set in the IE "CN Domain Identity"; and

1> include the calculated START value for that CN domain in the IE "START".

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.

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

  2> confirm the establishment of a signalling connection to upper layers; and

  2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

  2> the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.2 and 8.1.8, 3GPP TS 25.211 clause 5.3.3.10 (FDD), 3GPP TS25.221 (TDD), 3GPP TS 25.304 clause 8.

8.1.1.1.3 Test purpose

To confirm that the UE establishes an RRC connection after it receives a PAGING TYPE 1 message which includes IE "UE identity"(in IE "Paging Record") set to the IMSI of the UE, and responds with a correct INITIAL DIRECT TRANSFER message.

8.1.1.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity (set to IMSI), depending on the CN domain(s) supported by the UE.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched CN UE identity for the UE in the idle state. The UE shall not change its state. The SS transmits a PAGING TYPE 1 message, which includes a matched CN UE identity for the UE in the idle state. During transmission of PAGING TYPE 1 messages, SS selects the correct paging indicator on the PICH in order to allow the UE to respond to paging. Then the UE transmits an RRC CONNECTION REQUEST to the SS, the SS transmits an RRC CONNECTION SETUP to the UE. When the UE receives this message, the UE establishes an RRC connection and transmits an RRC CONNECTION SETUP COMPLETE message and an INITIAL DIRECT TRANSFER message on the uplink DCCH.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH, in addition to the normal BCCH transmissions. See specific message contents.
2	←		PAGING TYPE 1	The SS transmits the message, which includes an unmatched identity (incorrect IMSI), and the UE does not change its state.
3	←		PAGING TYPE 1	The SS transmits the message, which includes a matched identity (test-SIM IMSI).
4	→		RRC CONNECTION REQUEST	
5	←		RRC CONNECTION SETUP	SS assigns DPCH resources to allow UE to establish an RRC connection.
6	→		RRC CONNECTION SETUP COMPLETE	
7	→		INITIAL DIRECT TRANSFER	

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1) – for UEs supporting GSM-MAP core networks

Information Element	**Value/remark**
CN common GSM-MAP NAS system information	LAC
CN domain system information list	Only 1 entry
- CN domain system information	
- CN domain identity	Supported Domain (PS Domain or CS Domain)
- CHOICE CN Type	GSM-MAP
- CN domain specific NAS system information	1E 01(CS) or 00 00(PS)
- CN domain specific DRX cycle length coefficient	7
UE Timers and constants in idle mode	
- T300	4000 milliseconds
- N300	7
- T312	10 seconds
- N312	1

SYSTEM INFORMATION TYPE 13 (Step 1) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
CN domain system information list	Only 1 entry
CN domain system information	
- CN domain identity	Supported Domain (PS Domain or CS Domain)
- CHOICE CN Type	ANSI-41
- CN domain specific NAS system information	Default
- CN domain specific DRX cycle length coefficient	7
UE Timers and constants in idle mode	
- T300	4000 milliseconds
- N300	7
- T312	10 sec
- N312	1

PAGING TYPE 1 (Step 2)

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	Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to an arbitrary octet string of length 7 bytes which is different from the IMSI value stored in the TEST USIM card.
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

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	Registered Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the same octet string as in the IMSI stored in the TEST USIM card
BCCH modification info	Not Present

RRC CONNECTION REQUEST (Step 4)

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 3.
Protocol Error Indicator	Check to see if it is set to FALSE
Measured results on RACH	Not checked.

INITIAL DIRECT TRANSFER (Step 7) – for UEs supporting GSM-MAP core networks

Information Element	**Value/remark**
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM-MAP
--- CHOICE Routing basis	IMSI (response to IMSI paging)
---- Routing parameter	Bit string (10) consisting of DecimalToBinary [(IMSI div 10) mod 1000]. The bits of the result are numbered from b0 to b9, with bit b0 being the least significant..
--- Entered parameter	False
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 7) – for UEs supporting ANSI-41 core networks

Information Element	**Value/remark**
Message Type	
Integrity check info	Not present
CN domain identity	CS domain or PS domain
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.1.5 Test requirement

After step 2 the UE shall not transmit on the uplink CCCH in order to establish a RRC connection.

After step 5 the UE shall have an RRC connection based on dedicated physical channel resources and transmit an RRC CONNECTION SETUP COMPLETE message and INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.2 Paging for Connection in connected mode (CELL_PCH)

8.1.1.2.1 Definition

8.1.1.2.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

:

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

  2> if the optional IE "CN originated page to connected mode UE" is included:

    3> indicate reception of paging; and

    3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

  2> otherwise:

    3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

  2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

  2> ignore that paging record.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.2, 8.3.1.7.

8.1.1.2.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message which indicates that the paging has originated from UTRAN. To verify that the UE performs cell update procedure after entering the CELL_FACH state.

8.1.1.2.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI already assigned by the SS.

Test Procedure

SS transmits SYSTEM INFORMATION BLOCK TYPE 1 or 13 messages, depending on the CN type supported by the UE. The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI. The UE does not change its state. Then SS transmits a PAGING TYPE 1 message with a matched identifier but originates from the CN instead of UTRAN. The UE shall not change state after receiving this message. The SS transmits a PAGING TYPE 1 message, which includes a matched U-RNTI. Then the UE enters the CELL_FACH state and performs the cell updating procedure.

NOTE: For UEs supporting GSM-MAP CN type only, SYSTEM INFORMATION TYPE 1 messages are to be sent by SS in this test case. On the other hand, SS transmits SYSTEM INFORMATION TYPE 13 messages if the UE under test supports only ANSI-41 CN type.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		SYSTEM INFORMATION BLOCK TYPE 13 or SYSTEM INFORMATION BLOCK TYPE 1	Transmit these messages on the BCCH, in addition to the normal BCCH transmissions. See specific message contents
2	←		PAGING TYPE 1	The SS transmits a message including an unmatched identifier. UE shall not respond to the paging.
3	←		PAGING TYPE 1	The SS transmits a message includes a matched identifier but with the used paging identity being a CN identity, UE shall not respond to the paging.
4	←		PAGING TYPE 1	The SS transmits the message with used paging identity being a UTRAN identity and including the UE's assigned U-RNTI
5	→		CELL UPDATE	The UE enters the CELL_FACH state. UE performs cell updating procedure. The CELL UPDATE message shall contain the value "Cell Update Cause" set to "paging response".
6	←		CELL UPDATE CONFIRM	See message content.
7	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an arbitrary 16-bit string which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 3)

Same as the PAGING TYPE 1 message as in step 3 of clause 8.1.1.1.4.

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the same SRNC identity as previously assigned.
- S-RNTI	Set to the same S-RNTI as previously assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

SYSTEM INFORMATION BLOCK TYPE 13

Use the same SYSTEM INFORMATION BLOCK TYPE 13 message as specified in clause 8.1.1.1.4.

SYSTEM INFORMATION BLOCK TYPE 1

Use the same SYSTEM INFORMATION BLOCK TYPE 1 message as specified in clause 8.1.1.1.4.

CELL UPDATE CONFIRM (Step 6)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

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

UTRAN MOBILITY INFORMATION CONFIRM (Step 7)

Only the message type is checked.

8.1.1.2.5 Test requirement

After step 2 the UE shall not respond to the PAGING TYPE 1 message sent in step 2.

After step 3 the UE shall not respond to the PAGING TYPE 1 message sent in step 3.

After step 4 the UE shall enter the CELL FACH state and send a CELL UPDATE message with "Cell Update Cause" IE set to "paging response".

After step 6 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.3 Paging for Connection in connected mode (URA_PCH)

8.1.1.3.1 Definition

8.1.1.3.2 Conformance requirement

A UE in idle mode, CELL_PCH state or URA_PCH state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in [25.304] and depend on the IE "CN domain specific DRX cycle length coefficient", as specified in subclause 8.6.3.1a. For a UE in CELL_PCH state or URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

:

If the UE is in connected mode, for each occurrence of the IE "Paging record" included in the message the UE shall:

1> if the IE "Used paging identity" is a UTRAN identity and if this U-RNTI is the same as the U-RNTI allocated to the UE:

  2> if the optional IE "CN originated page to connected mode UE" is included:

    3> indicate reception of paging; and

    3> forward the IE "CN domain identity", the IE "Paging cause" and the IE "Paging record type identifier" to the upper layers.

  2> otherwise:

    3> perform a cell update procedure with cause "paging response" as specified in subclause 8.3.1.2.

  2> ignore any other remaining IE "Paging record" that may be present in the message.

1> otherwise:

  2> ignore that paging record.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

Reference

3GPP TS 25.331 clause 8.1.2, 8.3.1.7.

8.1.1.3.3 Test purpose

To confirm that the UE enters the CELL_FACH state after it receives a PAGING TYPE 1 message in which the IE "Used paging identity" is set to "UTRAN identity", and the UE takes the U-RNTI value assigned to it in the IE "U-RNTI".

8.1.1.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108, with a valid U-RNTI assigned by the SS.

Test Procedure

The SS transmits a PAGING TYPE 1 message, which includes an unmatched U-RNTI. The UE does not change its current state. The SS transmits a PAGING TYPE 1 message which includes a matched U-RNTI. Then the UE listens to it and enters the CELL_FACH state to transmit a CELL UPDATE message using uplink CCCH in respond to the paging.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1	←		PAGING TYPE 1	The SS transmits the message that includes an unmatched identifier, but UE does not change its state.
2	←		PAGING TYPE 1	The SS transmits the message that includes a matched identifier.
3	→		CELL UPDATE	The UE enters the CELL_FACH state.
4	←		CELL UPDATE CONFIRM	See message content.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

PAGING TYPE 1 (Step 1)

Information Element	**Value/remark**
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to an unused SRNC identity which is different from the SRNC identity assigned.
- S-RNTI	Set to an arbitrary 20-bit string which is different from the S-RNTI assigned.
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	
- SRNC Identity	Set to the previously assigned SRNC identity
- S-RNTI	Set to previously assigned S-RNTI
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE CONFIRM (Step 4)

Use the message sub-type in default message content defined in [9] (TS 34.108) Clause 9, with the following exceptions.

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

UTRAN MOBILITY INFORMATION CONFIRM (Step 5)

Only the message type is checked.

8.1.1.3.5 Test requirement

After step 1 the UE shall not respond to the paging.

After step 2 the UE shall enter the CELL FACH state, and transmit CELL UPDATE message to initiate the cell updating procedure with the paging cause set to "paging response".

After step 4 the UE shall be in the CELL_FACH state and shall transmit UTRAN MOBILITY INFORMATION CONFIRM message.

8.1.1.4 Paging for notification of BCCH modification in idle mode

8.1.1.4.1 Definition

8.1.1.4.2 Conformance requirement

A UE in idle mode state shall receive the paging information for all its monitored paging occasions. For an UE in idle mode, the paging occasions are specified in TS 25.304 and depend on the IE "CN domain specific DRX cycle length coefficient".

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in idle mode state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in TS 25.331 subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

~~When a system information block on the BCCH is modified, the PAGING TYPE 1 message can be sent on the PCCH to inform UE in the idle mode about the changes, which are currently taking place. The PAGING TYPE 1 message includes the IE "BCCH Modification Information". Upon receiving this notification from the UTRAN, the UE shall read the relevant MIB and/or SIB(s) subsequently during idle mode.~~

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.~~-~~2.

8.1.1.4.3 Test purpose

To confirm that the UE checks the new value tag of the master information block and reads the updated SYSTEM INFORMATION BLOCK messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity, depending on the CN domain(s) supported by the UE.

Test Procedure

The SS transmits a PAGING TYPE 1 message. This message addresses the UE using its IMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the time when the first modified master information block is available. Before the starting time, SS continuously broadcast the original MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on the BCCH mapped to BCH transport channel. SS maintains this status until the SFN which corresponds to the modification time is reached. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 5 message. In the new SIB TYPE 5 message, the IE "Available Signature" is different when compared to the original SIB TYPE 5 message.

At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its IMSI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with RRC CONNECTION REQUEST message. Then SS shall transmit RRC CONNECTION REJECT message to UE.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1	←		PAGING TYPE 1	SS starts to transmit this message on the PCCH at the correct paging occasion.
1a	→		RRC CONNECTION REQUEST	
1b	←		RRC CONNECTION REJECT	
2	←		PAGING TYPE 1	SS transmits the message including the IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the BCCH modification time is set to 2048 radio frames from the current SFN. SS continues to broadcast the original MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH.
3	← ←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5	At the SFN indicated by the BCCH modification time, 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 5 messages continuously. The IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)".
4	←		PAGING TYPE 1	SS starts to transmit this message continuously on the PCCH at the correct paging occasion.
5			RRC CONNECTION REQUEST	
6	←		RRC CONNECTION REJECT	

Specific Message Contents

PAGING TYPE 1 (Step 1 and 4)

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	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	TMSI
- IMSI	Same as registered TMSI or P-TMSI
	Not Present
BCCH modification info	

RRC CONNECTION REJECT (Step 1b)

Use the same message type found in [9] TS 34.108 clause 9.

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Not Present
BCCH modification info	
MIB Value Tag	2
BCCH Modification time	Set to (current SFN + 2048)

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	2

SYSTEM INFORMATION BLOCK TYPE 5 (Step 3)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

RRC CONNECTION REJECT

Use the same message type found in TS 34.108, clause 9.

8.1.1.4.5 Test requirement

After step 1 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 1, using an allowed signature according to original IE "Available signature" in SYSTEM INFORMATION BLOCK TYPE 5.

After step 4 the UE shall transmit RRC CONNECTION REQUEST messages in response to the PAGING TYPE 1 messages sent in step 4, using an allowed signature according to modified IE "Available signature" in SYSTEM INFORMATION BLOCK TYPE 5.

8.1.1.5 Paging for notification of BCCH modification in connected mode (CELL_PCH)

8.1.1.5.1 Definition

8.1.1.5.2 Conformance requirement

A UE in CELL_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in CELL_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in TS 25.331 subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in CELL_PCH state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in TS 25.331 subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;

2> if the value tags differ:

3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;

3> read and store the IEs of that system information block.

…

~~When a system information block on the BCCH is modified, the message PAGING TYPE 1 can be sent on the PCCH to inform UE in the CELL_PCH state about this change. This message includes the IE "BCCH Modification Information". Upon receiving this notification from the UTRAN, the UE shall read the relevant MIB and/or SIB(s) subsequently while in CELL_PCH state, in addition to any actions caused by the IE "Paging record" occurrences in the message.~~

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.~~-~~2.

8.1.1.5.3 Test purpose

To confirm that the UE, in addition to any actions caused by the IE "Paging record" occurrences in the PAGING TYPE 1 message, checks the new value tag of the master information block, and read the SYSTEM INFORMATION messages after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.5.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_PCH state (state 6-12) as specified in clause 7.4 of TS 34.108 with valid a U-RNTI assigned to it.

Test Procedure

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The paging identity is equal to the U-RNTI assigned earlier. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The PAGING TYPE 1 message shall also include the IE "BCCH Modification Information" indicating the time when the first modified master information block is available. Before the starting time, SS continuously broadcast the original MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on the BCCH mapped to BCH transport channel. SS maintains this status until the SFN, which corresponds to the modification time, is reached. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 6 message. In the new SIB TYPE 6 message, the IE "Available Signature" is different when compared to the original SIB TYPE 6 message. At the paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 2048 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH.
2a	→		CELL UPDATE	
2b	←		CELL UPDATE CONFIRM	
3	← ←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 6	At the SFN indicated by the BCCH modification time, 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 6 continuously. The value of IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)".
4	←		PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct paging occasion.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	
- MIB Value Tag	2
- BCCH Modification time	Set to (current SFN + 2048)

CELL UPDATE (Step 2a)

Check to see if the same message type found in Annex A[9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 2
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response

CELL UPDATE CONFIRM (Step 2b)

Use the same message type found in clause Annex A[9] (TS 34.108) Clause 9., with the following exception:

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

MASTER INFORMATION BLOCK (Step 3)

Information Element	Value/remark
MIB Value tag	2

SYSTEM INFORMATION BLOCK TYPE 6 (Step 3)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 4
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in Annex A[9] (TS 34.108) Clause 9., with the following exception:

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

8.1.1.5.5 Test requirement

After step 2 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response", using an allowed signature according to original IE "Available signature" in SYSTEM INFORMATION BLOCK TYPE 6.

After step 4 the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response", using an allowed signature according to modified IE "Available signature" in SYSTEM INFORMATION BLOCK TYPE 6.

8.1.1.6 Paging for notification of BCCH modification in connected mode (URA_PCH)

8.1.1.6.1 Definition

8.1.1.6.2 Conformance requirement

A UE in URA_PCH state shall receive the paging information for all its monitored paging occasions. For a UE in URA_PCH state, the paging occasions depend also on the IE "UTRAN DRX cycle length coefficient" and the IE "RRC State Indicator", as specified in TS 25.331 subclauses 8.6.3.2 and 8.6.3.3 respectively.

When the UE receives a PAGING TYPE 1 message, it shall perform the actions as specified below.

…

If the IE "BCCH modification info" is included, any UE in URA_PCH state shall perform the actions as specified in TS 25.331 subclause 8.1.1 in addition to any actions caused by the IE "Paging record" occurrences in the message as specified above.

The UE shall:

1> compare the value of IE "MIB value tag" in the IE "BCCH modification info" with the value tag stored for the master information block in variable VALUE_TAG.

1> if the value tags differ:

2> read the master information block on BCH;

2> if the value tag of the master information block in the system information is the same as the value in IE "MIB value tag" in "BCCH modification info" but different from the value tag stored in the variable VALUE_TAG:

3> perform actions as specified in subclause 8.1.1.5.

…

Upon reception of the master information block, the UE shall:

1> compare the value tag in the master information block with the value tag stored for this cell and this PLMN in the variable VALUE_TAG;

1> if the value tags differ:

2> store the value tag into the variable VALUE_TAG for the master information block;

2> read and store scheduling information included in the master information block.

….

For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

1> for all system information blocks with area scope "PLMN" or "Equivalent PLMN" that use value tags:

- 2> compare the value tag read in scheduling information for that system information block with the value stored within the variable VALUE_TAG for that system information block;
- 2> if the value tags differ:
  - 3> store the value tag read in scheduling information for that system information block into the variable VALUE_TAG;
  - 3> read and store the IEs of that system information block.

…

~~When a system information block on the BCCH is modified, the UTRAN can send a PAGING TYPE 1 message on the PCCH to inform UE about the changes while the UE is in the URA_PCH state. This message includes the IE "BCCH Modification Information". When receiving this message in URA_PCH state, the UE shall read the relevant MIB and/or SIB(s).~~

Reference

3GPP TS 25.331 clause 8.1.1, 8.1.~~-~~2.

8.1.1.6.3 Test purpose

To confirm that the UE checks the included new value tag of the master information block and reads the relevant SYSTEM INFORMATION block(s) after it receives a PAGING TYPE 1 message which includes the IE "BCCH Modification Information".

8.1.1.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: URA_PCH state (state 6-13) as specified in clause 7.4 of TS 34.108 with a valid U-RNTI assigned.

Test Procedure

The SS transmits a PAGING TYPE 1 message on the paging occasions assigned to the UE. The message shall include the IE "BCCH Modification Information" indicating the time when the first modified master information block is available. Before the starting time, SS continuously broadcast the original MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on the BCCH mapped to BCH transport channel. SS maintains this status until the SFN which corresponds to the modification time is reached. Then it transmits the new master information block followed by the new SYSTEM INFORMATION BLOCK TYPE 6 message. In the new SIB TYPE 5 message, the IE "Available Signature" is different when compared to the original SIB TYPE 6 message. At the next paging occasion, SS transmits a new PAGING TYPE 1 message. This message addresses the UE using its U-RNTI and the "paging cause" IE set to a terminating call type that is supported by the UE. The UE shall respond with a CELL UPDATE message and set IE "cell update cause" to "paging response". The SS shall transmit a CELL UPDATE CONFIRM message.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1			Void	
2	←		PAGING TYPE 1	SS transmits the paging message which comprises IE "BCCH Modification Information", with the "Value Tag" changed from the "MIB Value Tag" of the current Master Information Block. Also the modification time is set to 2048 radio frame from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH.
3	← ←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 6	At the SFN indicated by the BCCH modification time, 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 6 message continuously. The value of IE "Available Signature" is changed from "0000 0000 1111 1111(B)" to "1111 1111 0000 0000(B)".
4	←		PAGING TYPE 1	SS transmits this message continuously on the PCCH at the correct occasion.
5	→		CELL UPDATE	
6	←		CELL UPDATE CONFIRM	See message content.

Specific Message Contents

PAGING TYPE 1 (Step 2)

Information Element	**Value/remark**
Message Type	
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	2
- BCCH Modification time	Set to (current SFN + 2048)

MASTER INFORMATION BLOCK (Step 3)

Information Element	**Value/remark**
MIB Value tag	2

SYSTEM INFORMATION BLOCK TYPE 6 (Step 3)

Use the same message type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
- PRACH system information	
- PRACH info	
- CHOICE mode	FDD
- Available Signature	'1111 1111 0000 0000'B

PAGING TYPE 1 (Step 4)

Information Element	Value/remark
Message Type	
Paging record list	Only 1 entry
Paging record	
- CHOICE Used paging identity	UTRAN identity
- U-RNTI	Equal to the U-RNTI assigned earlier.
- SRNC Identity	
- S-RNTI	
- CN originated page to connected mode UE	Not Present
BCCH modification info	Not Present

CELL UPDATE (Step 5)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
U-RNTI	Checked to see if it is set to the same values as in step 4
- SRNC identity	
- S-RNTI	
Cell update cause	Paging response

CELL UPDATE CONFIRM (Step 6)

Use the same message type found in TS 34.108, clause 9 with the following exceptions.

Information Element	Value/Remarks
RRC State indicator	URA_PCH
UTRAN DRX cycle length coefficient	3

8.1.1.6.5 Test requirement

After step 4, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "paging response", using an allowed signature according to modified IE "Available signature" in SYSTEM INFORMATION BLOCK TYPE 6.

8.1.1.7 Paging for Connection in connected mode (CELL_DCH)

8.1.1.7.1 Definition

8.1.1.7.2 Conformance requirement

When the UE receives a PAGING TYPE 2 message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

The UE shall:

1> indicate reception of paging; and

1> forward the IE "Paging cause" and the IE "Paging record type identifier" to upper layers.

…

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

The UE shall, in the INITIAL DIRECT TRANSFER message:

…

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

~~This procedure is used to transmit a PAGING TYPE 2 message from the network to selected UE in CELL_DCH state using the dedicated control channel (DCCH). The UE listens to it and responds to this message accordingly.~~

~~When UE receives an invalid PAGING TYPE 2 message, UE shall perform procedure specific error handling.~~

Reference

3GPP TS 25.331 clause 8.1.8.2, 8.1.11.

8.1.1.7.3 Test purpose

To confirm that the UE responds to a PAGING TYPE 2 message which includes the IE "Paging Cause" and the IE "Paging Record Type Identifier".

To confirm that the UE responds with a RRC STATUS message after it has received an invalid PAGING TYPE 2 message.

8.1.1.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or state 6-10) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE, after executing a location registration or attach procedure followed by the release of the TMSI of P-TMSI allocated. The UE has been registered in both CS and PS domains.

Test Procedure

The SS transmits an invalid PAGING TYPE 2 message. UE shall respond by transmitting a RRC STATUS message on the uplink DCCH using RLC-AM mode. Finally, SS transmits a PAGING TYPE 2 message, which includes a matched Paging Record Type Identifier. Then the UE shall responds to this message by the transmission of an INITIAL DIRECT TRANSFER message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 2	See message content.
3	→		RRC STATUS	The UE shall respond by reporting the protocol error to the SS.
4	←		PAGING TYPE 2	SS pages the UE with a matched identifier and with a valid "paging cause" IE from a new CN Domain.
5	→		INITIAL DIRECT TRANSFER	The UE shall respond to the paging message sent in step 4.

Specific Message Contents

PAGING TYPE 2 (Step 2)

SS sends a message containing a protocol error causing the UE to perform procedure specific error handling.

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Paging Cause	Set to value "Spare"
CN Domain Identity	CS
Paging Record Type Identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.

RRC STATUS (Step 3)

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

Information Element	Value/remark
Identification of received message	
- Received message type	PAGING TYPE 2
- RRC transaction identifier	Checked to see if the value is identical to the same IE in the PAGING TYPE 2 message.
Protocol error information	
- Protocol Error Cause	Information element value not comprehended

PAGING TYPE 2 (Step 4)

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

Information Element	Values/Remarks
Paging cause	Terminating Call supported by the UE
CN domain identity	Domain supported by the UE
Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.

INITIAL DIRECT TRANSFER (Step 5) – for UEs supporting GSM-MAP core networks

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- 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.
- 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
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	IMSI (response to IMSI paging)
---- Routing parameter	Bit string (10) consisting of DecimalToBinary [(IMSI div 10) mod 1000]. The bits of the result are numbered from b0 to b9, with bit b0 being the least significant.
--- Entered parameter	FALSE
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 5) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- 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.
- 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
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.7.5 Test requirement

After step 2 the UE shall respond to the paging message by transmitting RRC STATUS on the DCCH, stating the protocol error as " Information element value not comprehended ".

After step 4 the UE shall respond to the paging message by transmitting an INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.1.8 Paging for Connection in connected mode (CELL_FACH)

8.1.1.8.1 Definition

8.1.1.8.2 Conformance requirement

When the UE receives a PAGING TYPE 2 message, it shall not affect the state of any other ongoing RRC procedures, when not stated otherwise elsewhere.

The UE shall:

1> indicate reception of paging; and

1> forward the IE "Paging cause" and the IE "Paging record type identifier" to upper layers.

…

In the UE, the initial direct transfer procedure shall be initiated, when the upper layers request establishment of a signalling connection. This request also includes a request for the transfer of a NAS message.

The UE shall, in the INITIAL DIRECT TRANSFER message:

…

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.

The UE shall:

1> transmit the INITIAL DIRECT TRANSFER message on the uplink DCCH using AM RLC on signalling radio bearer RB3;

1> when the INITIAL DIRECT TRANSFER message has been submitted to lower layers for transmission:

2> confirm the establishment of a signalling connection to upper layers; and

2> add the signalling connection with the identity indicated by the IE "CN domain identity" in the variable ESTABLISHED_SIGNALLING_CONNECTIONS.

1> when the successful delivery of the INITIAL DIRECT TRANSFER message has been confirmed by RLC:

2> the procedure ends.

~~This procedure is used to transmit a PAGING TYPE 2 message from the network to selected UE in CELL_FACH state using the dedicated control channel (DCCH). The UE shall listen to it and responds to this message accordingly.~~

Reference

3GPP TS 25.331 clause 8.1.8.2, 8.1.11.

8.1.1.8.3 Test purpose

To confirm that the UE responds to a PAGING TYPE 2 message, which includes a matching value for IE "Paging Record Type Identifier".

8.1.1.8.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108. The UE has been registered in both CS and PS domains.

Test Procedure

The SS transmits a PAGING TYPE 2 message. Then the UE shall respond by transmitting an upper layer message to answer this page.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1			Void	
2	←		PAGING TYPE 2	The SS transmits the message includes a matched identifier.
3	→		INITIAL DIRECT TRANSFER	The UE responds by sending an upper layer message.

Specific Message Content

PAGING TYPE 2 (Step 2)

Use the same message type found in [9] (TS 34.108) Clause 9, with the following exception.

Information Element	Values/Remarks
Paging cause	Terminating Call supported by the UE
CN domain identity	CS
Paging record type identifier	Set to "IMSI (GSM-MAP)" for UEs supporting GSM-MAP core network type or "IMSI (DS-41)" for UEs supporting ANSI-41 core network type.

INITIAL DIRECT TRANSFER (Step 3) – for UEs supporting GSM-MAP core networks

Only the message type IE for this message is checked.

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- 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.
- 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
Intra Domain NAS Node Selector	
- CHOICE version	R99
-- CHOICE CN type	GSM
--- CHOICE Routing basis	Local (P)TMSI
---- Routing parameter	The TMSI/P-TMSI consists of 4 octets (32bits). The bits are numbered from b0 to b31, with bit b0 being the least significant The "Routing parameter" bit string consists of bits b14 through b23 of the TMSI/ PTMSI where bit b14 is the least significant.
--- Entered parameter	FALSE
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

INITIAL DIRECT TRANSFER (Step 3) – for UEs supporting ANSI-41 core networks

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- 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.
- 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
Intra Domain NAS Node Selector	
- CHOICE version	ANSI-41 : Bitstring(14), all bits set to 0
NAS message	Not checked
START	Not checked
Measured results on RACH	Not checked

8.1.1.8.5 Test requirement

After step 2 the UE shall respond to the PAGING TYPE 2 message by transmitting an INITIAL DIRECT TRANSFER message on the uplink DCCH.

8.1.2 RRC Connection Establishment

8.1.2.1 RRC Connection Establishment in CELL_DCH state: Success

8.1.2.1.1 Definition

8.1.2.1.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

…

1> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> 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;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> stop timer T300, and act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

2> if the UE will be in the CELL_FACH state at the conclusion of this procedure:

…

1> perform the physical layer synchronization procedure as specified in TS 25.214;

1> enter UTRA RRC connected mode, in a state according to TS 25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS 25.331 subclause 8.6.3.3, with the contents set as specified below:

2> set the IE "RRC transaction identifier" to:

3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

3> clear that entry.

…

2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

1> consider the procedure to be successful;

And the procedure ends.

~~1. The RRC connection establishment is initiated by the UE, which leaves the idle mode and transmits an RRC CONNECTION REQUEST message. This message is to be transmitted on the uplink CCCH and shall include the IE "Initial UE identity" and the IE "Measured results on RACH".~~

~~2. After the UE receives an RRC CONNECTION SETUP message which includes the same value of the IE "initial UE identity", radio resource parameters (i.e. Signalling radio bearers and multiplexing info) and U-RNTI, UE then configures the layer 2 and layer 1 so as to support the DCCH according to the radio resource parameters specified. The procedure successfully ends when the network receives an RRC CONNECTION SETUP COMPLETE message on the uplink DCCH.~~

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.1.3 Test purpose

1. To confirm that the UE leaves the Idle Mode and correctly establishes signalling radio bearers on the DCCH.
2. To confirm that the UE indicates the requested UE radio access capabilities and UE system specific capabilities (may be used by UTRAN e.g. to configure inter RAT- measurements).

8.1.2.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

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 attempting to make an outgoing call. After SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE. SS then transmits an RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that does not match the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST message sent by the UE. UE receives the RRC CONNECTION SETUP message before timer T300 expires but discards it due to a IE "Initial UE Identity" mismatch. UE shall wait for timer T300 to time out before re-transmitting a RRC CONNECTION REQUEST message to the SS. SS again assigns the necessary radio resources and U-RNTI. SS then transmits a RRC CONNECTION SETUP message containing an IE "Initial UE Identity" that matches the IE "Initial UE Identity" in the most recent RRC CONNECTION REQUEST sent by the UE. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. 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	→		RRC CONNECTION REQUEST	By outgoing call operation. See specific message contents.
2	←		RRC CONNECTION SETUP	This message is not addressed to the UE. See specific message contents.
3	→		RRC CONNECTION REQUEST	UE shall re-transmit the request message again after a time out of T300 from step 1.
4	←		RRC CONNECTION SETUP	See specific message contents.
5				The UE configures the layer 2 and layer 1.
6	→		RRC CONNECTION SETUP COMPLETE	See specific message contents.
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 Content

System Information Block type 11 (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
- Intra-frequency reporting quantity for RACH Reporting	
- SFN-SFN observed time difference reporting indicator	No report
- CHOICE *mode*	
- FDD	
- Reporting quantity	CPICH Ec/N0
- Maximum number of reported cells on RACH	current cell

RRC CONNECTION REQUEST (Step 1)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Measured results on RACH	Check to see if set in accordance with the IE "Intra-frequency reporting quantity for RACH Reporting" included in SYSTEM INFORMATION BLOCK Type 11
- Measurement result for current cell	
- CHOICE mode	
- FDD	
- CHOICE measurement quantity	
- CPICH Ec/N0	The actual reported value is not checked

RRC CONNECTION SETUP (Step 2)

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

Information Element	Value/remark
Initial UE Identity	Set to the same type as in the RRC CONNECTION REQUEST message but with a different value

RRC CONNECTION SETUP (Step 4)

Use the default message with the same message type and covering the scenario used in this test (Transition to CELL_DCH) specified in clause 9 of TS 34.108.

RRC CONNECTION SETUP COMPLETE (Step 6)

Use the default message with the same message type specified in clause 9 of TS 34.108 with the following exception.

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.1.5 Test requirement

After step 2 the UE shall re-transmit the RRC CONNECTION REQUEST message again in order to continue the RRC connection establishment procedure.

After step 6 the UE shall establish an RRC connection and continue the procedure of the outgoing call on the DCCH.

8.1.2.2 RRC Connection Establishment: Success after T300 timeout

8.1.2.2.1 Definition

8.1.2.2.2 Conformance requirement

If the UE has not yet received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY; and

if expiry of timer T300 occurs:

the UE shall:

1> check the value of V300; and

2> if V300 is equal to or smaller than N300:

3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

3> submit a new RRC CONNECTION REQUEST message to 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:

…

~~1. The RRC connection establishment is initiated by the UE, which leaves the idle mode. The UE shall transmit an RRC CONNECTION REQUEST message which includes the IE "Initial UE identity". This message shall be sent on the uplink CCCH.~~

~~When there are more than one PRACHs available, the UE shall select one PRACH randomly and transmit an RRC CONNECTION REQUEST message by use of selected PRACH.~~

~~2. In the case of a failure to establish the RRC connection at the expiry of timer T300, the UE retries to establish the RRC connection until V300 is greater than N300~~

Reference

3GPP TS 25.331 clause 8.1.3.5

8.1.2.2.3 Test purpose

To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 after the expiry of timer T300 when the SS transmits no response for an RRC CONNECTION REQUEST message.

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 5 message is 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 unexpected critical message extension 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. Also the modification time is set to 2048 radio frames from the current SFN. SS continuously broadcast the same MASTER INFORMATION BLOCK and various types of SYSTEM INFORMATION BLOCK on BCCH. See specific message contents.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 5	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 5 messages. See specific message contents.
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	Use an invalid message in ASN.1. See specific message contents for this message.
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	2
- BCCH Modification time	Set to (current SFN + 2048)

SYSTEM INFORMATION TYPE 5 (Step 1a) - (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:

- 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	~~ALL~~Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	ALL
- 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
- Reference TFC ID	0
- CHOICE Mode	FDD
- Power offset Pp-m	0dB
- CTFC information	1
~~- Reference TFC ID~~	~~0~~
- Power offset information	
- CHOICE Gain Factors	Signalled Gain Factor
- Gain factor ßc	11
- Gain factor ßd	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
- 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
- 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
- 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
- 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	FDD
- Primary CPICH DL TX power	31
- Constant value	–10
- 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	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	~~ALL~~Configured
- RLC size	360
- Number of TB and TTI List	
- Number of Transport blocks	1
- CHOICE Mode	FDD
- CHOICE Logical Channel List	~~ALL~~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
- 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 ßc	11
- Gain factor ßd	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
- 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
- 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
- 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
- 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	FDD
- Primary CPICH DL TX power	31
- Constant value	–10
- 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 1a) – 3.84 Mcps TDD

- 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
- 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
- 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	
- 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 1a) – 1.28 Mcps TDD

- PRACH system information	2PRACHs
- PRACH info (PRACH No.1)	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	'11110000'B
- $PRX_{UpPCHdes}$	10
- Power Ramping Step	3
- Max SYNC_UL Transmissions	8
- Mmax	32
- PRACH Definition	
- Timeslot Number	
- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	1
- PRACH Channelisation Code	
- Channelisation Code List	
- Channelisation Code	8/1
- Midamble shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- FPACH info	
- Timeslot number	6
- Channelisation code	16/16
- Midamble Shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	16
- Midamble Shift	Not Present
- WT	4
- 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	½
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD

- Available SYNC_UL codes indices	'11110000'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'11110000'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 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	1.28 Mcps TDD
- SYNC_UL info	
- SYNC_UL codes bitmap	'11110000'B
- $PRX_{UpPCHdes}$	10
- Power Ramping Step	1
- Max SYNC_UL Transmissions	8
- Mmax	32
- PRACH Definition	
- Timeslot Number	
- CHOICE TDD option	1.28 Mcps TDD
- Timeslot number	1
- PRACH Channelisation Code	
- Channelisation Code List	
- Channelisation Code	8/2
- Midamble shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	8
- Midamble Shift	Not Present
- FPACH info	
- Timeslot number	An available down-link timeslot

- Channelisation code	16/15
- Midamble Shift and burst type	
- CHOICE TDD option	1.28 Mcps TDD
- Midamble Allocation Mode	Default
- Midamble Configuration	16
- Midamble Shift	Not Present
- WT	4
- 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	½
- Rate matching attribute	150
- CRC size	16
- RACH TFCS	Not Present
- PRACH partitioning	
- Access Service Class	
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#0)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#1)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#2)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#3)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#4)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#5)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 Mcps TDD
- Available SYNC_UL codes indices	'00001111'B (ASC#6)
- CHOICE subchannel size	Size1
- ASC Setting	
- CHOICE mode	TDD
- CHOICE TDD option	1.28 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

RRC CONNECTION SETUP (Step 6)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator":

Information Element	Value/remark
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Critical extensions	'01'H

RRC CONNECTION REQUEST (Step 7)

Use the default message with the same message type specified in clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Protocol Error Indicator	Check to see if set to TRUE

8.1.2.2.5 Test requirement

After step 2 the UE shall select either PRACH No.1 or PRACH No.2 and transmit an RRC CONNECTION REQUEST message.

After step 6 the UE shall re-send another RRC CONNECTION REQUEST message.

After step 9 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection on the DCCH logical channel.

8.1.2.7 RRC Connection Establishment in CELL_FACH state: Success

8.1.2.7.1 Definition

8.1.2.7.2 Conformance requirement

The UE shall initiate the procedure when upper layers in the UE requests the establishment of a signalling connection and the UE is in idle mode (no RRC connection exists).

Upon initiation of the procedure, the UE shall:

…

1> set the contents of the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> 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;

1> submit the RRC CONNECTION REQUEST message for transmission on the uplink CCCH;

1> set counter V300 to 1; and

1> start timer T300 when the MAC layer indicates success or failure to transmit the message;

1> select a Secondary CCPCH according to TS 25.304;

1> start receiving all FACH transport channels mapped on the selected Secondary CCPCH.

The UE shall, in the transmitted RRC CONNECTION REQUEST message:

1> set the IE "Establishment cause" to the value of the variable ESTABLISHMENT_CAUSE;

1> set the IE "Initial UE identity" to the value of the variable INITIAL_UE_IDENTITY;

…

The UE shall compare the value of the IE "Initial UE identity" in the received RRC CONNECTION SETUP message with the value of the variable INITIAL_UE_IDENTITY.

If the values are different, the UE shall:

1> ignore the rest of the message.

If the values are identical, the UE shall:

1> stop timer T300, and act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

  2> if the UE will be in the CELL_FACH state at the conclusion of this procedure:

    3> if the IE "Frequency info" is included:

      4> select a suitable UTRA cell according to TS 25.304 on that frequency;

    3> select PRACH according to TS 25.331 subclause 8.5.17;

    3> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

    3> ignore the IE "UTRAN DRX cycle length coefficient" and stop using DRX.

1> perform the physical layer synchronization procedure as specified in TS 25.214;

1> enter UTRA RRC connected mode, in a state according to TS 25.331 subclause 8.6.3.3;

1> submit an RRC CONNECTION SETUP COMPLETE message to the lower layers on the uplink DCCH after successful state transition per TS 25.331 subclause 8.6.3.3, with the contents set as specified below:

  2> set the IE "RRC transaction identifier" to:

    3> the value of "RRC transaction identifier" in the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS; and

    3> clear that entry.

  2> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE radio access capability" and IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

2> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and then

2> include this in IE "UE system specific capability".

When the RRC CONNECTION SETUP COMPLETE message has been submitted to lower layers for transmission the UE shall:

1> if the UE has entered CELL_FACH state:

2> start timer T305 using its initial value 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 system information block type 1.

1> consider the procedure to be successful;

And the procedure ends.

~~During the RRC connection establishment, the UTRAN might assign common physical resource to the UE using an RRC CONNECTION SETUP message. When no information about the physical channels accessible is available from the message, the UE shall utilize the PRACH and S-CCPCH information transmitted on the BCCH and then enter CELL_FACH state. Subsequently, the UE shall establish the required signalling radio bearers with the UTRAN using common physical resources.~~

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.7.3 Test Purpose

1. To confirm that the UE is able to enter CELL_FACH state and setup signalling radio bearers using common physical channels.
2. To confirm that the UE indicates the requested UE radio access capabilities (used by UTRAN to decide which RAB to establish) and UE system specific capabilities (may be used by UTRAN to configure inter RAT-measurements).

8.1.2.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

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 attempting to make an outgoing call. After the SS receives this message, it assigns the necessary radio resources and U-RNTI to be used by the UE, and then transmits an RRC CONNECTION SETUP message to the UE within timer T300. SS then waits for the UE to transmit an RRC CONNECTION SETUP COMPLETE message on the DCCH. 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	→		RRC CONNECTION REQUEST	Test operator is requested to make an outgoing call. The UE shall transmit this message, indicating the correct establishment cause. See specific message contents.
2	←		RRC CONNECTION SETUP	See specific message contents.
3				The UE shall configure the layer 2 and layer 1.
4	→		RRC CONNECTION SETUP COMPLETE	UE shall send this message on the DCCH, carried by the assigned PRACH resources. See specific message contents. FDD
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

RRC CONNECTION REQUEST

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	Originating Interactive Call or Originating Background Call or Originating Streaming Call

RRC CONNECTION SETUP

For this message, the contents of the message to be used are basically identical to the message sub-type entitled "RRC CONNECTION SETUP message (Transition to CELL_FACH)" found in TS 34.108, clause 9 with the following exception:

Information Element	Value/remark
Capability update requirement	
UE radio access FDD capability update requirement	TRUE
UE radio access TDD capability update requirement	FALSE
System specific capability update requirement list	gsm

RRC CONNECTION SETUP COMPLETE

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

Information Element	Value/remark
UE Radio Access Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE radio access capability extension	Checked to see if compatible with the stated capability in PIXIT/PICS statements.
UE system specific Capability	Checked to see if compatible with the stated capability in PIXIT/PICS statements.

8.1.2.7.5 Test requirements

After step 3 the UE shall establish the RRC connection, and transmit RRC CONNECTION SETUP COMPLETE message on the DCCH using PRACH physical resource specified in system information block messages.

8.1.2.9 RRC Connection Establishment: Success after Physical channel failure and Failure after Invalid configuration

8.1.2.9.1 Definition

8.1.2.9.2 Conformance requirement

If the UE failed to establish, per TS 25.331 subclause 8.5.4, the physical channel(s) indicated in the RRC CONNECTION SETUP message.

After having received an RRC CONNECTION SETUP message with the value of the IE "Initial UE identity" equal to the value of the variable INITIAL_UE_IDENTITY.

Before the RRC CONNECTION SETUP COMPLETE message is delivered to lower layers for transmission,

the UE shall:

1> clear the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> check the value of V300, and:

  2> if V300 is equal to or smaller than N300:

    3> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

    3> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

    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; and

    3> restart timer T300 when the MAC layer indicates success or failure in transmitting the message.

  2> if V300 is greater than N300:

    …

If the UE receives an RRC CONNECTION SETUP message which contains an IE "Initial UE identity" with a value which is identical to the value of the variable INITIAL_UE_IDENTITY; and

the variable INVALID_CONFIGURATION becomes set to TRUE due to the received RRC CONNECTION SETUP message:

the UE shall:

1> clear the entry for the RRC CONNECTION SETUP message in the table "Accepted transactions" in the variable TRANSACTIONS and proceed as below;

1> if V300 is equal to or smaller than N300:

  2> set the variable PROTOCOL_ERROR_INDICATOR to TRUE;

  2> set the IEs in the RRC CONNECTION REQUEST message according to TS 25.331 subclause 8.1.3.3;

  2> perform the mapping of the Access Class to an Access Service Class as specified in TS 25.331 subclause 8.5.13; and

  2> apply the given Access Service Class when accessing the RACH;

  2> submit a new RRC CONNECTION REQUEST message to the lower layers for transmission on the uplink CCCH;

2> increment counter V300; and

2> restart timer T300 when the MAC layer indicates success or failure in transmitting the message.

1> if V300 is greater than N300:

…

~~1. The RRC connection establishment is initiated by the UE, which leaves the idle mode. The UE shall transmit an RRC CONNECTION REQUEST message which includes the IE "Initial UE identity". This message shall be sent on the uplink CCCH.~~

~~2. In the case of a failure to establish the RRC connection due to a physical channel failure after the UE receives an RRC CONNECTION SETUP message, the UE retries to establish the RRC connection until V300 is greater than N300~~

~~3. In the case of a RRC CONNECTION SETUP message is received by UE causes invalid configuration, the UE retries to establish the RRC connection until V300 is greater than N300.~~

Reference

3GPP TS 25.331 clause 8.1.3.

8.1.2.9.3 Test purpose

1. To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 when a physical channel failure occurs because SS does not configure the physical channel that is specified in the transmitted RRC CONNECTION SETUP message.

2. -To confirm that the UE retries to establish the RRC connection until V300 is greater than N300 when the transmitted RRC CONNECTION SETUP message causes invalid configuration in the UE.

8.1.2.9.4 Method of test

Initial Condition

System Simulator: 1 cell

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

Before the test starts, an internal counter K in SS is initialised to a value = 0. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH, after the operator attempts to make an outgoing call. SS increments K every time such a message is received. Then, SS shall send a RRC CONNECTION SETUP message that contains an invalid configuration. UE shall then send RRC CONNECTION REQUEST message to SS again. This cycle is repeated until K reaches N300+1. When K is equal to N300+1, the SS again transmits an RRC CONNECTION SETUP message including an invalid configuration. Upon receiving this message the UE shall not send another RRC CONNECTION REQUEST message.

Next the SS re-initialises the internal counter K to value = 0, after which the operator attempts to make another outgoing call. Following this, the UE shall transmit an RRC CONNECTION REQUEST message to the SS on the uplink CCCH. SS increments K every time such a message is received. SS transmits an RRC CONNECTION SETUP message to make the UE configure the physical channel in order to communicate on the DCCH but SS does not configure the physical channel. Then the UE detects the physical channel failure and transmits an RRC CONNECTION REQUEST message. This cycle is repeated until K reaches N300+1. When K is equal to N300+1, the SS transmits the RRC CONNECTION SETUP message and configures the physical channel. The UE shall detect "in-sync" from physical layer and 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				SS initialises counter K to 0. Operator is asked to make an outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
2	→		RRC CONNECTION REQUEST	See specific message contents.
2a				SS increments K by 1 for every RRC CONNECTION REQUEST message received in step 2
2b	←		RRC CONNECTION SETUP	See specific message contents.
3				SS checks to see if K is equal to N300+1. If so, goes to step 3a. Else, continues to execute step 2.
3a				SS waits to verify that the UE does not send any further RRC CONNECTION REQUEST message
3b				SS re-initialises counter K to 0. Operator is asked to make another outgoing call and SS starts to wait for RRC CONNECTION REQUEST on uplink CCCH.
3c	→		RRC CONNECTION REQUEST	See specific message contents.
3d				SS increments K by 1 for every RRC CONNECTION REQUEST message received in step 3c
3e				SS checks to see if K is equal to N300+1. If so, goes to step 6. Else, continues to execute step 4
4	←		RRC CONNECTION SETUP	Use the default message with the same message sub-type specified in clause 9 in TS 34.108. SS does not configure the physical channel.
5				The next step is step 3c.
6	←		RRC CONNECTION SETUP	Use the default message with the same message sub-type specified in clause 9 in TS 34.108. SS configures the physical channel.
7				The UE configures the layer 1 and layer 2.
8	→		RRC CONNECTION SETUP COMPLETE	Use the default message with the same message sub-type specified in clause 9 in TS 34.108.

Specific Message Contents

RRC CONNECTION REQUEST (Step 2 & step 3c, K=0)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

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	Originating Interactive Call or Originating Background Call or Originating Streaming Call

RRC CONNECTION REQUEST (Step 2 & step 3c, K>0)

The same message sub-type found in clause 9 of TS 34.108 applies, with the following exceptions:

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	Originating Interactive Call or Originating Background Call or Originating Streaming Call
Protocol error indicator	TRUE

RRC CONNECTION SETUP (Step 2b)

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

Information Element	Value/remark
RRC State Indicator	CELL_DCH
Uplink DPCH info	Not present

8.1.2.9.5 Test requirement

After step 3a the UE shall not send any further RRC CONNECTION REQUEST message.

After step 8 the UE shall transmit an RRC CONNECTION SETUP COMPLETE message and establish an RRC connection.

8.1.3 RRC Connection Release

8.1.3.1 RRC Connection Release in CELL_DCH state: Success

8.1.3.1.1 Definition

8.1.3.1.2 Conformance requirement

1. The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

   When the UE receives the first RRC CONNECTION RELEASE message, it shall:

   …

   - in state CELL_DCH:
     - initialise the counter V308 to zero;

   …

- submit an RRC CONNECTION RELEASE COMPLETE message to the lower layers for transmission using UM RLC on the DCCH to the UTRAN;

  …

- start timer T308 when the RRC CONNECTION RELEASE COMPLETE message is sent on the radio interface.

2. When in state CELL_DCH and the timer T308 expires, the UE shall:
   - increment V308 by one;
   - if V308 is equal to or smaller than N308:
     - retransmit the RRC CONNECTION RELEASE COMPLETE message, without incrementing "Uplink RRC Message sequence number" for signalling radio bearer RB1 in the variable INTEGRITY_PROTECTION_INFO;
   - if V308 is greater than N308:
     - release all its radio resources;

     …

     - enter idle mode;
     - perform the actions specified in TS 25.331 clause 8.5.2 when entering idle mode;
     - and the procedure ends.

Reference

3GPP TS 25.331 clause 8.1.4.3, 8.1.4.6

8.1.3.1.3 Test purpose

To verify:

1. that the UE when receiving an RRC CONNECTION RELEASE message transmits N308+1 RRC CONNECTION RELEASE COMPLETE messages before release of radio resources and entering into idle mode
2. that the time between UE transmissions of the RRC CONNECTION RELEASE COMPLETE message is equal to the value of the T308 timer.

8.1.3.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CELL_DCH state (state 6-1 or state 6-3) 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 brought to the CELL_DCH state by prompting the operator to initiate an outgoing call. After the DCCH is established, SS transmits an RRC CONNECTION RELEASE message to the UE to disconnect the connection. SS then waits for the UE to transmit an RRC CONNECTION RELEASE COMPLETE message using unacknowledged mode. SS checks to see if UE re-transmit this ~~N308 + 1 such~~ message~~s has been received~~ at each expiry of T308 timer and if N308+1 RRC CONNECTION RELEASE COMPLETE message have been received. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_DCH state after a successful RRC connection establishment by virtue of the operator making an outgoing call.
2	←		RRC CONNECTION RELEASE	SS disconnect the connection established. The value in IE "N308" is arbitrarily chosen from 1 to 8.
3	→		RRC CONNECTION RELEASE COMPLETE	SS waits for the arrival of N308 + 1 such message with an interarrival time of T308, using unacknowledged mode.
4				SS verifies that the UE release its L2 signalling radio bearer and dedicated resources and enters idle mode.
5	←→		CALL C.1	If the test result of C.1 indicates that UE is in Idle Mode state, the test passes, otherwise it fails.

Specific Message Content

RRC CONNECTION RELEASE (Step 2)

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

Information Element	Value/remark
N308	Arbitrarily chosen between 1 and 8

8.1.3.1.5 Test requirement

After step 2 the UE shall transmit N308 + 1 RRC CONNECTION RELEASE COMPLETE messages. The time between the transmissions shall be equal to the T308 timer value.

After step 3 the UE shall initiate the release of the L2 signalling radio bearer and dedicated resources and enter idle mode.

8.1.3.3 RRC Connection Release using on CCCH in CELL_FACH state: Success

8.1.3.3.1 Definition

8.1.3.3.2 Conformance requirement

The UE shall receive and act on an RRC CONNECTION RELEASE message in states CELL_DCH and CELL_FACH. Furthermore this procedure can interrupt any ongoing procedures with the UE in the above listed states.

When the UE receives the first RRC CONNECTION RELEASE message; and

- 1> if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- 1> if the message is received on DCCH:

the UE shall:

…

1> in state CELL_FACH:

…

2> if the RRC CONNECTION RELEASE message was received on the CCCH:

3> release all its radio resources;

3> 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 the upper layers;

3> clear any entry for the RRC CONNECTION RELEASE message in the tables "Accepted transactions" and "Rejected transactions" in the variable TRANSACTIONS;

3> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

3> clear the variable ESTABLISHED_RABS;

3> pass the value of the IE "Release cause" received in the RRC CONNECTION RELEASE message to upper layers;

3> enter idle mode;

3> perform the actions specified in TS 25.331 subclause 8.5.2 when entering idle mode;

3> and the procedure ends.

~~In CELL_FACH state, the RRC layer entity in the network may issue an RRC CONNECTION RELEASE message using unacknowledged mode on the CCCH. Upon the reception of this message, the UE shall release the RRC connection immediately, without replying with a RRC CONNECTION RELEASE COMPLETE message on the uplink.~~

Reference

3GPP TS 25.331 clause 8.1.4.3

8.1.3.3.3 Test purpose

To confirm that the UE releases all its radio resources upon the reception of a RRC CONNECTION RELEASE message on the downlink CCCH, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink.

8.1.3.3.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-2 or state 6-4) 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 brought to an initial state of CELL_FACH. After the successful establishment of the RRC connection, SS transmits an RRC CONNECTION RELEASE message on the downlink CCCH. The UE shall terminate the RRC connection and release all radio resources allocated to it. SS monitors the uplink DCCH and CCCH to verify that no transmission is detected. SS calls for generic procedure C.1 to check that UE is in Idle Mode state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to the CELL_FACH state.
2	←		RRC CONNECTION RELEASE	SS transmits this message with the contents identical to that found in TS 34.108 clause 9 on downlink CCCH.
3				SS waits for a period equivalent to 60 seconds. The UE shall not send any response message on uplink direction during this period. It shall release the radio resources allocated and return to idle mode.
4	←→		CALL C.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

None.

8.1.3.3.5 Test requirement

After step 2 the UE shall release all its radio resources, return to idle mode, without transmitting RRC CONNECTION RELEASE COMPLETE message on the uplink direction.

8.1.5 UE capability

8.1.5.1 UE Capability in CELL_DCH state: Success

8.1.5.1.1 Definition

8.1.5.1.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

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

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon reception of a UE CAPABILITY INFORMATION CONFIRM message, the UE shall:

1> stop timer T304;

…

1> and the procedure ends.

If the UE receives a UE CAPABILITY INFORMATION CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> stop timer T304;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to UE CAPABILITY INFORMATION CONFIRM; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY INFORMATION CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

  2> restart timer T304 and continue with any ongoing procedures or processes as if the invalid UE CAPABILITY INFORMATION CONFIRM message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

  2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

  2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

~~1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network that is supported by the UE or if the UTRAN needs an update of the UE's UMTS capability information or of its inter-system classmark.~~

~~2. When the UE receives a UE CAPABILITY ENQUIRY message, the UE transmits a UE CAPABILITY INFORMATION message on the uplink DCCH. Then the UTRAN transmits a UE CAPABILITY INFORMATION CONFIRM message.~~

~~3. If during the execution of UE capability update procedure, an invalid UE CAPABILITY INFORMATION CONFIRM is received, the UE shall respond with RRC STATUS message and decide whether to re-transmit UE CAPABILITY INFORMATION message by comparing its internal counter against N304.~~

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.9.3b

8.1.5.1.3 Test purpose

1. To confirm that the UE transmits a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS.

2. To confirm that the UE indicates an invalid message reception when invalid UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_DCH state (state 6-9 or 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 brought to the CELL_DCH state after a successful outgoing call attempt. The SS transmits a UE CAPABILITY ENQUIRY message containing an unexpected critical message extension. After receiving such a message, the UE shall report the error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a correct UE CAPABILITY ENQUIRY message, the UE receives this message and transmits a UE CAPABILITY INFORMATION message on the uplink DCCH which includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Then SS initiates another UE capability enquiry procedure. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits a UE CAPABILITY INFORMATION CONFIRM message containing an unexpected critical message extension. The UE shall detect an error and send an RRC STATUS message to report this event. After submitting this message to lower layers for transmission, the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH after the expiry of restarted T304. SS then transmits ~~completes this test by transmitting~~ an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_DCH state after an outgoing call has been established successfully.
2	←		UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→		RRC STATUS	See specific message contents for this message
4	←		UE CAPABILITY ENQUIRY	See specific message contents for this message.
5	→		UE CAPABILITY INFORMATION	See specific message contents for this message.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	←		UE CAPABILITY ENQUIRY	Same as in step 4.
8	→		UE CAPABILITY INFORMATION	Shall be the same message content as in step 5.
9	←		UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	→		RRC STATUS	UE shall detect an error and then transmit this message.
11	→		UE CAPABILITY INFORMATION	UE shall re-transmit this message after the restarted T304 expires.
12	←		UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator":

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Critical extensions	'01'H

RRC STATUS (Step 3)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message - Received message type - RRC transaction identifier	 UE Capability Enquiry Checked to see if the value is identical to the same IE in the downlink UE CAPABILITY ENQUIRY message.
Protocol Error Information - Protocol Error Cause	 Message extension not comprehended

UE CAPABILITY ENQUIRY (Steps 4)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Capability update requirement	
- UE radio access FDD capability update requirement	TRUE
- UE radio access TDD capability update requirement	FALSE
- System specific capability update requirement list	Gsm

UE CAPABILITY INFORMATION (Step 5)

Check to see if the same message type found in [9] (TS 34.108) Clause 9 is received, with the following exceptions:

Information Element	Value/remark
UE system specific capability	Presence and value will be checked. Stated capability must be compatible with 34.123-2 (ICS statements) and the user settings

UE CAPABILITY INFORMATION CONFIRM (Step 9)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator". Use the UE CAPABILITY INFORMATION CONFIRM message as defined in [9] (TS 34.108) Clause 9, with the following addition:

Information Element	Value/remark
Critical extensions	'01'H

RRC STATUS (Step 10)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message - Received message type - RRC transaction identifier	 UE Capability Information Confirm Checked to see if the value is identical to the same IE in the downlink UE CAPABILITY INFORMATION CONFIRM message.
Protocol Error Information - Protocol Error Cause	 Message extension not comprehended

8.1.5.1.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "Message extension not comprehended" correct transaction identifier.

After step 4 and 7 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the UE CAPABILITY ENQUIRY message with correct contents.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended" and the transaction identifier set to the same value as used in the UE CAPABILITY ENQUIRY message of step 7.

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8 after the expiry of restarted T304.

8.1.5.4 UE Capability in CELL_FACH state: Success

8.1.5.4.1 Definition

8.1.5.4.2 Conformance requirement

The UE shall initiate the UE capability update procedure in the following situations:

1> the UE receives a UE CAPABILITY ENQUIRY message from the UTRAN;

…

If the UE CAPABILITY INFORMATION message is sent in response to a UE CAPABILITY ENQUIRY message, the UE shall:

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

1> set it to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY ENQUIRY message in the table "Accepted transactions" in the variable TRANSACTIONS;

1> retrieve its UTRA UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE radio access capability" and in IE "UE radio access capability extension", provided this IE is included in variable UE_CAPABILITY_REQUESTED;

1> retrieve its inter-RAT-specific UE radio access capability information elements from variable UE_CAPABILITY_REQUESTED; and

1> include this in IE "UE system specific capability".

The UE RRC shall submit the UE CAPABILITY INFORMATION message to the lower layers for transmission on the uplink DCCH using AM RLC. When the message has been delivered to lower layers for transmission the UE RRC shall start timer T304 and set counter V304 to 1.

Upon reception of a UE CAPABILITY INFORMATION CONFIRM message, the UE shall:

1> stop timer T304;

…

1> and the procedure ends.

If the UE receives a UE CAPABILITY INFORMATION CONFIRM message, which contains a protocol error causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE according to TS 25.331 clause 9, the UE shall perform procedure specific error handling as follows:

1> stop timer T304;

1> transmit an RRC STATUS message on the uplink DCCH using AM RLC;

1> include the IE "Identification of received message"; and

1> set the IE "Received message type" to UE CAPABILITY INFORMATION CONFIRM; and

1> set the IE "RRC transaction identifier" to the value of "RRC transaction identifier" in the entry for the UE CAPABILITY INFORMATION CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> include the IE "Protocol error information" with contents set to the value of the variable PROTOCOL_ERROR_INFORMATION;

1> when the RRC STATUS message has been submitted to lower layers for transmission:

  2> restart timer T304 and continue with any ongoing procedures or processes as if the invalid UE CAPABILITY INFORMATION CONFIRM message has not been received.

…

If the UE receives an RRC message on the DCCH, or addressed to the UE on the CCCH or on the SHCCH, or sent via a radio access technology other than UTRAN, containing an undefined critical message extension, the UE shall:

1> set the variable PROTOCOL_ERROR_REJECT to TRUE;

1> set the IE "Protocol error cause" in the variable PROTOCOL_ERROR_INFORMATION to "Message extension not comprehended";

1> if the IE "Message Type" of the received message is not present in the table "Rejected transactions" in the variable TRANSACTIONS:

  2> store the IE "Message type" of the received message in the table "Rejected transactions" in the variable TRANSACTIONS; and

  2> set the IE "RRC transaction identifier" to zero in that table entry.

1> perform procedure specific error handling according to TS 25.331 clause 8.

~~1. The UE CAPABILITY ENQUIRY message is sent by the UTRAN to request the UE to transmit its capability information related to any radio access network(s) supported by the UE. UTRAN initiates this procedure when it needs an update of the UE's UMTS capability information or of its inter-system classmark.~~

~~2. When the UE receives a UE CAPABILITY ENQUIRY message, the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH.~~

~~3. If during the execution of UE capability update procedure, an invalid UE CAPABILITY INFORMATION CONFIRM is received, the UE shall respond with RRC STATUS message and decide whether to re-transmit UE CAPABILITY INFORMATION message by comparing its internal counter against N304.~~

Reference

3GPP TS 25.331 clauses 8.1.6 and 8.1.7.9.3b

8.1.5.4.3 Test purpose

1. To confirm that the UE transmits a UE CAPABILITY INFORMATION message after it receives a UE CAPABILITY ENQUIRY message from the SS.

2. To confirm that the UE indicates an invalid message reception when invalid UE CAPABILITY ENQUIRY and UE CAPABILITY INFORMATION CONFIRM messages are received. The UE shall transmit RRC STATUS message with the correct error cause value to SS.

8.1.5.4.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH state (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to the CELL_FACH state after a successful outgoing call attempt.The SS transmits a UE CAPABILITY ENQUIRY message containing an unexpected critical message extension. After receiving such a message, the UE shall report an error using RRC STATUS message with the appropriate error cause specified. Then SS transmits a UE CAPABILITY ENQUIRY message which includes the IE "Capability update requirement". After UE receives this message, it transmits a UE CAPABILITY INFORMATION message on the uplink DCCH, which includes the requested capabilities. The SS transmits a UE CAPABILITY INFORMATION CONFIRM message to the UE to complete the UE capability enquiry procedure.

Then SS initiates another UE capability enquiry procedure. The UE shall reply with a UE CAPABILITY INFORMATION message on the uplink DCCH. When SS receives this message, it transmits a UE CAPABILITY INFORMATION CONFIRM message containing an unexpected critical message extension. The UE shall detect an error and send an RRC STATUS message to report this event. After submitting this message to lower layers for transmission, the UE shall re-transmit a UE CAPABILITY INFORMATION message on the uplink DCCH upon the expiry of restarted T304. SS completes this test by sending an error-free UE CAPABILITY INFORMATION CONFIRM message similar to the message sent in step 6.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1				The UE is brought to CELL_FACH state after an outgoing call has been established successfully.
2	←		UE CAPABILITY ENQUIRY	See specific message contents for this message
3	→		RRC STATUS	See specific message contents for this message.
4	←		UE CAPABILITY ENQUIRY	Use default message.
5	→		UE CAPABILITY INFORMATION	Use default message.
6	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
7	←		UE CAPABILITY ENQUIRY	Same as in step 4.
8	→		UE CAPABILITY INFORMATION	The message content shall be the same as in step 5.
9	←		UE CAPABILITY INFORMATION CONFIRM	See specific message contents for this message
10	→		RRC STATUS	UE shall detect an error and then transmit this message on uplink DCCH.
11	→		UE CAPABILITY INFORMATION	UE shall re-transmit this message after the restarted T304 expires.
12	←		UE CAPABILITY INFORMATION CONFIRM	SS sends an error-free message to acknowledge the receipt of the uplink message.

Specific Message Contents

UE CAPABILITY ENQUIRY (Step 2)

Use the UE CAPABILITY ENQUIRY message as defined in [9] (TS 34.108) Clause 9, with the following exceptions:

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects an integer between 0 and 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Critical extensions	'01'H

RRC STATUS (Step 3)

Check to is the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Enquiry
- RRC transaction identifier	Checked to see if the value is identical to the same IE in the downlink UE CAPABILITY ENQUIRY message.
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

UE CAPABILITY INFORMATION CONFIRM (Step 9)

SS sends a message containing a critical extension not defined for the protocol release supported by the UE, as indicated in the IE "Access stratum release indicator". Use the UE CAPABILITY INFORMATION CONFIRM message as defined in [9] (TS 34.108) Clause 9, with the following addition:

Information Element	Value/remark
Critical extensions	'01'H

RRC STATUS (Step 10)

Check to see if the same message type found in TS 34.108, clause 9 is received, with the following exceptions:

Information Element	Value/remark
Identification of received message	
- Received message type	UE Capability Information Confirm
- RRC transaction identifier	Checked to see if the value is identical to the same IE in the downlink UE CAPABILITY INFORMATION CONFIRM message.
Protocol Error Information	
- Protocol Error Cause	Message extension not comprehended

8.1.5.4.5 Test requirement

After step 2, the UE shall transmit a RRC STATUS message on the uplink DCCH, reporting the error with protocol error cause set to "Message extension not comprehended" correct transaction identifier.

After step 4 and 7 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH to respond to the downlink UE CAPABILITY ENQUIRY message with correct contents.

After step 9, the UE shall transmit a RRC STATUS message on the uplink DCCH. The protocol error cause shall be set to "Message extension not comprehended" and the transaction identifier set to the same value as used in the UE CAPABILITY ENQUIRY message of step 7.

After step 10, the UE shall re-transmit the UE CAPABILITY INFORMATION message with a similar content as in step 8 upon the expiry of restarted T304.

8.1.7 Security mode command

8.1.7.1 Security mode command in CELL_DCH state (CS Domain)

8.1.7.1.1 Definition

8.1.7.1.2 Conformance requirement

1. This procedure is used to trigger or start of ciphering or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any radio bearers of a particular CN Domain. It is also used to start integrity protection or modify integrity protection configuration for the signalling radio bearers.
2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates a downlink activation time for each effected SRB and RB, and new ciphering mode configuration, the UE shall apply the old ciphering configuration, for a particular SRB or RB, before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.
3. After the UE has transmitted a SECURITY MODE COMPLETE message using the new integrity protection configuration which includes uplink activation time, it shall start to cipher transmission in the uplink using the new configuration at the respective uplink activation time for each SRB or RB.

Reference

3GPP TS 25.331 clauses 8.1.12, 8.6.3.4, 8.6.3.5.

8.1.7.1.3 Test purpose

To confirm that the UE activates the new ciphering configurations after the stated activation time. 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 together with the application of the new integrity protection configuration. To confirm that UE send SECURITY MODE FAILURE message when SS transmits a SECURITY MODE COMMAND message that causes an invalid configuration. To confirm that the UE sends a SECURITY MODE FAILURE message when the UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.1.4 Method of test

Initial Condition

System Simulator: 1 cell.

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

Test Procedure

The UE is in CELL_DCH state. The SS initiates an Authentication 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 IE's "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. 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.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1				RRC connected state on DCH_state.
1a	←		AUTHENTICATION REQUEST	MM message which will result in the generation of a new security keyset
1b	→		AUTHENTICATION RESPONSE	MM
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			Void	
8			Void	
9	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
10	←		UE CAPABILITY ENQUIRY	SS repeats step 10, 11 and 12 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.
11	→		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.
12	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

Information Element	**Value/remark**
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	Next RRC SN
Critical extensions	'01'H

SECURITY MODE FAILURE (Step 3)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Protocol error
Protocol error information	
Protocol error cause	Message extension not comprehended

SECURITY MODE COMMAND (Step 4)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	Not Present
- Ciphering mode command	
Integrity protection mode info	Not Present
CN domain identity	CS Domain

SECURITY MODE FAILURE (Step 5)

The same message found in TS 34.108, clause 9 shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Invalid configuration

SECURITY MODE COMMAND (Step 6)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	X
Integrity check info	
Message authentication code	Calculated result in SS
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~~Current CFN + 225~~
Radio bearer downlink ciphering activation time info	
RB Identity	
RLC sequence number	1
RB Identity	Current RLC SN + Y
RLC sequence number	2
RB Identity	Current RLC SN + 4
RLC sequence number	3
RB Identity	Current RLC SN + Y
RLC sequence number	4
Integrity protection mode info	Current RLC SN + Y
Integrity protection mode command	
Downlink integrity protection activation info	Modify
	Current RRC SN for SRB0 + 2
	Current RRC SN for SRB1 + 2
	Current RRC SN for SRB2 + 2
	Current RRC SN for SRB3 + 2
Integrity protection algorithm	Current RRC SN for SRB4 + 2
CN domain identity	UIA1
	CS Domain

Note X = 0 (Step 6), and Y= 1 (Step 6)

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present
- RRC Message sequence number	Checked to see if present
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
Radio bearer uplink ciphering activation info	
- RB Identity other than RB2	Check to see if the RLC SN for RB1, 3 and 4 are present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'

8.1.7.1.5 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.

After step 8 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 9 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 6) 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 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both direction shall be ciphered and integrity protected..

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

1. This procedure is used to trigger the start of ciphering or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any radio bearers of a particular CN Domain. It is also used to start integrity protection or modify integrity protection configuration for the signalling radio bearers.

2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates a downlink activation time for each effected SRB and RB, and new ciphering mode configuration, the UE shall apply the old ciphering configuration, for each particular SRB or RB, before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.

3. After the UE has transmitted a SECURITY MODE COMPLETE message using the new integrity protection configuration which includes uplink activation time, it shall start to cipher transmission in the uplink using the new configuration at the respective uplink activation time for each SRB or RB.

Reference

3GPP TS 25.331 clauses 8.1.12, 8.6.3.4, 8.6.3.5.

8.1.7.1b.3 Test purpose

To confirm that the UE activates the new ciphering configurations after the stated activation time. 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 together with the application of the new integrity protection configuration. To confirm that UE send SECURITY MODE FAILURE message when SS transmits a SECURITY MODE COMMAND message that causes an invalid configuration. 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: CELL_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

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 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. Following that, the SS immediately transmits another valid SECURITY MODE COMMAND message to the UE. 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. Then 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. 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.

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. 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)

Information Element	**Value/remark**
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	Next RRC SN
Critical extensions	'01'H

SECURITY MODE FAILURE (Step 3)

The same message found in [9] (TS 34.108) Clause 9 shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Protocol error
Protocol error information	
Protocol error cause	Message extension not comprehended

SECURITY MODE COMMAND (Step 4)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	Next RRC SN
Security Capability	Same as originally sent by UE (and stored in SS)
Ciphering mode info	Not Present
Integrity protection mode info	Not Present
CN domain identity	PS Domain

SECURITY MODE FAILURE (Step 5)

The same message found in [9] (TS 34.108) Clause 9 shall be transmitted by the UE on the uplink DCCH, with the exception of the following IEs:

Information Element	Value/remark
Failure cause	
Failure cause	Invalid configuration

SECURITY MODE COMMAND (Step 6)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	X
Integrity check info	
Message authentication code	Calculated result in SS
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 + Y
RB Identity	2
RLC sequence number	Current RLC SN + 4
RB Identity	3
RLC sequence number	Current RLC SN + Y
RB Identity	4
RLC sequence number	Current RLC SN + Y
RB Identity	20
RLC sequence number	Current RLC SN + Y
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0 + 2 Current RRC SN for SRB1 + 2 Current RRC SN for SRB2 + 2 Current RRC SN for SRB3 + 2 Current RRC SN for SRB4 + 2
Integrity protection algorithm	UIA1
CN domain identity	PS Domain

Note X = 0 (Step 6), and Y=1 (Step 6),

SECURITY MODE COMPLETE (Step 7)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present
- RRC Message sequence number	Checked to see if present
Uplink integrity protection activation info	
- RRC message sequence number listRadio bearer uplink ciphering activation info	Check to see if the RRC SN for RB 0 to RB 4 are present
- RB Identity other than RB2	Check to see if the RLC SN for RB1, 3, 4 and 20 are present
- RB Identity	2
- RLC sequence number	SS records this value. See step 8 in 'expected sequence'

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.

After step 7 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 6) 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 8 and step 10 shall be repeated correctly after activation time on both directions has lapsed and the messages on both direction shall be ciphered and integrity protected.

8.1.7.2 Security mode command in CELL_FACH state

8.1.7.2.1 Definition

8.1.7.2.2 Conformance requirement

1. This procedure is used to trigger the start of ciphering, or to command the restart of ciphering with the new ciphering configuration for the signalling radio bearers and any radio bearers of a particular CN Domain. It is also used to start integrity protection or modify integrity protection configuration for signalling radio bearers.
2. When the UE receives a SECURITY MODE COMMAND message from the UTRAN, which indicates the downlink activation time for each effected SRB and RB, and new ciphering mode configuration, the UE shall apply the old ciphering configuration, for a particular SRB or RB, before the stated downlink activation time. It shall start to decipher using the new ciphering configuration at the downlink activation time.
3. The UE shall transmit SECURITY MODE COMPLETE message using the new integrity protection configuration stated in the received SECURITY MODE COMMAND message. The SECURITY MODE COMPLETE message shall include the ciphering uplink activation time. The UE shall start to apply the new ciphering configuration on the uplink direction, after the uplink activation time has elapsed respectively for each SRB or RB.

Reference

3GPP TS 25.331 clauses 8.1.12, 8.6.3.4, 8.6.3.5.

8.1.7.2.3 Test purpose

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 together with the application of the new integrity protection configuration. To confirm that the UE applies the old ciphering configuration in the downlink prior to the activation time; and uses the new ciphering configuration on and after the activation time. To confirm that the UE starts to cipher its uplink transmissions after the uplink activation time stated in SECURITY MODE COMPLETE message is reached. To confirm that the UE sends a SECURITY MODE FAILURE message when the UE receives an invalid SECURITY MODE COMMAND message.

8.1.7.2.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CELL_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH 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 SECURITY MODE COMMAND message which contains an unexpected critical message extension. The UE shall respond by sending SECURITY MODE FAILURE message on the DCCH. Next, SS transmits a valid SECURITY MODE COMMAND message which includes the correct downlink activation times and IE "Integrity check info". The UE shall check the integrity check info. It shall start to configure ciphering in downlink and transmit a SECURITY MODE COMPLETE message, which contains the correct uplink activation times using the new integrity protection configuration. This message shall contain the IE "Integrity check info". SS records the uplink ciphering activation time for RB 2. Next, 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 checks all uplink messages are integrity-protected by UIA1 algorithm, and that the messages contain the correct values for

"Integrity check info" IE by sending a UE CAPABILITY INFORMATION CONFIRM. This cycle repeats itself until both the uplink and downlink ciphering activation time for RB 2 have elapsed. After both the uplink and downlink ciphering activation time for RB 2 have passed, the UE shall be able to communicate with the SS using the new ciphering configurations. This can be verified in SS through the reception of a correctly ciphered and integrity-protected UE CAPABILITY INFORMATION message.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1				UE is initially in CELL_FACH 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 specific 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			Void	
5			Void	
6			Void	
7			Void	
8	←		SECURITY MODE COMMAND	See specific message contents.
9	→		SECURITY MODE COMPLETE	SS verifies that this message is sent using the old ciphering configuration. SS records the uplink ciphering activation time for RB 2.
10	←		UE CAPABILITY ENQUIRY	SS repeats step 10,11 and 12 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.
11	→		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.
12	←		UE CAPABILITY INFORMATION CONFIRM	

Specific Message Contents

SECURITY MODE COMMAND (Step 2)

Information Element	**Value/remark**
Integrity check info	
Message authentication code	Calculated result in SS
RRC Message sequence number	Next RRC SN
Critical extensions	'01'H

SECURITY MODE COMMAND (Step 8)

See notes below for the value of Y.

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
Message authentication code	Calculated result in SS
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 + Y
RB Identity	2
RLC sequence number	Current RLC SN + 4
RB Identity	3
RLC sequence number	Current RLC SN + Y
RB Identity	4
RLC sequence number	Current RLC SN + Y
RB Identity	20
RLC sequence number	Current RLC SN + Y
Integrity protection mode info	
Integrity protection mode command	Modify
Downlink integrity protection activation info	
	Current RRC SN for SRB0 + 2 Current RRC SN for SRB1 + 2 Current RRC SN for SRB2 + 2 Current RRC SN for SRB3 + 2 Current RRC SN for SRB4 + 2
Integrity protection algorithm	UIA1
CN domain identity	PS Domain

Y=1 (Step 8)

SECURITY MODE COMPLETE (Step 9)

Information Element	Value/remark
RRC transaction identifier	0
Integrity check info	
- Message Authentication code	Checked to see if present
- RRC Message sequence number	Checked to see if present
Uplink integrity protection activation info	
- RRC message sequence number list	Check to see if it the RRC SN for RB 0 to RB 4 are present
Radio bearer uplink ciphering activation info	
- RB Identity other than RB2	Check to see if the RLC SN for RB1, 3 and 4 are present
- RB Identity	2
- RLC sequence number	SS records this value. See step 10 in 'expected sequence'

8.1.7.2.5 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 8 the SS checks that the SECURITY MODE COMPLETE message is received ciphered using the old configuration and that the calculated MAC-I values in "integrity check info" IE is correct.

After step 9 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 8) 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 10 and step 12 shall be repeated correctly after activation time on both directions has lapsed and the messages on both directions shall be ciphered and integrity protected.

8.1.9 Signalling Connection Release Indication

8.1.9.1 Definition

8.1.9.2 Conformance requirement

The UE shall, on receiving a request to release (abort) the signalling connection from upper layers for a specific CN domain:

1> if a signalling connection in the variable ESTABLISHED_SIGNALLING_CONNECTIONS for the specific CN domain identified with the IE "CN domain identity" exists:

  2> initiate the signalling connection release indication procedure.

1> otherwise:

  …

The UE shall:

1> set the IE "CN Domain Identity" to the value indicated by the upper layers. The value of the IE indicates the CN domain whose associated signalling connection the upper layers are indicating to be released;

1> remove the signalling connection with the identity indicated by upper layers from the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> transmit a SIGNALLING CONNECTION RELEASE INDICATION message on DCCH using AM RLC.

When the SIGNALLING CONNECTION RELEASE INDICATION message has been submitted to lower layers for transmission the procedure ends.

~~The UE shall initiate the signalling connection release procedure when the higher layer entities in the UE request to release one or more signalling session (one example of such case is location update failure). In this case, the UE shall transmit a SIGNALLING CONNECTION RELEASE INDICATION message, which includes the CN domain identity of the connection flow to be released.~~

Reference

3GPP TS 25.331 clause 8.1.14.

8.1.9.3 Test purpose

To confirm that the UE transmits a SIGNALLING CONNECTION RELEASE INDICATION message after it fails to receive a response for the LOCATION UPDATING REQUEST message.

8.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: Switched off (state 1) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is turned on and it shall find a suitable cell to camp on. The UE shall initiate a location updating procedure. The UE shall establish an RRC connection and transmit a ATTACH REQUEST message or a LOCATION UPDATING

REQUEST message using the INITIAL DIRECT TRANSFER message depending on supported CN domain. The SS does not respond to this message, and the UE shall send a SIGNALLING CONNECTION RELEASE INDICATION message which includes the CN domain identity with the same value as that in the INITIAL DIRECT TRANSFER message.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is powered on.
2	→		RRC CONNECTION REQUEST	UE shall initiate the location updating procedure.
3	←		RRC CONNECTION SETUP	
4				The UE configures the layer 2 and layer 1.
5	→		RRC CONNECTION SETUP COMPLETE	
6	→		INITIAL DIRECT TRANSFER	Depending on supported CN domain, includes ATTACH REQUEST message (PS domain) or LOCATION UPDATE REQUEST (CS domain) message is emdedded in INITIAL DIRECT TRANSFER message.
7				The SS does not respond and waits until the timer for location update procedure or attach procedure expires.
8	→		SIGNALLING CONNECTION RELEASE INDICATION	

Specific Message Content

SIGNALLING CONNECTION RELEASE INDICATION (Step 8)

Information Element	Value/remark
CN domain identity	Check to see if this value is the same as in the uplink INITIAL DIRECT TRANSFER message.

8.1.9.5 Test requirement

After step 1 the UE shall initiate the LOCATION UPDATING procedure or ATTACH procedure and establish an RRC connection.

After step 7 the UE shall transmit a SIGNALLING CONNECTION RELEASE INDICATION message which includes the same CN domain identity as that found in the INITIAL DIRECT TRANSFER message.

3GPP TSG- T1 Meeting #16 **T1-020520**
Yokohama, Japan, 2nd Aug 2002

3GPP TSG–T1/SIG Meeting #24 **Tdoc T1S-020353**
Yokohama, Japan, 29th- 31st July 2002

CR-Form-v4

CHANGE REQUEST

⌘ **34.123-1 CR 268** ⌘ ev **-** ⌘ Current version: **5.0.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to package1 clause 8.2 of TS34.123-1		
Source:	⌘	Panasonic		
Work item code:	⌘	TEI	***Date:*** ⌘	9/07/2002
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)*

Reason for change: ⌘

1. Update Conformance Requirement according to core specification 25.331.
2. Update Reference.

Summary of change: ⌘

In clause 8.2.1.1
- Conformance Requirement and Reference are updated.

In clause 8.2.1.8
- Conformance Requirement and Reference are updated.

In clause 8.2.1.9
- Reference is updated.

In clause 8.2.1.10
- Conformance Requirement and Reference are updated.

In clause 8.2.3.1
- Conformance Requirement and Reference are updated.

In clause 8.2.3.7
- Conformance Requirement and Reference are updated.

In clause 8.2.3.8
- Conformance Requirement and Reference are updated.

In clause 8.2.3.9
- Conformance Requirement and Reference are updated.

		In clause 8.2.3.15 • Conformance Requirement and Reference are updated. In clause 8.2.3.18 • Conformance Requirement and Reference are updated. In clause 8.2.3.19 • Conformance Requirement and Reference are updated.
Consequences if not approved:	⌘	If changes are not approved, UE might not be properly tested.

Clauses affected:	⌘	Clause 8.2.1.1,8.2.1.8,8.2.1.9,8.2.1.10,8.2.3.1,8.2.3.7,8.2.3.8,8.2.3.9,8.2.3.15,8.2.3.18,8.2.3.19	
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ 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/3G_Specs/CRs.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 Radio Bearer control procedure

8.2.1 Radio Bearer Establishment

8.2.1.1 Radio Bearer Establishment for transition from CELL_DCH to CELL_DCH: Success

8.2.1.1.1 Definition

8.2.1.1.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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.

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;

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.

~~The UE shall correctly set up a new radio bearer according to a RADIO BEARER SETUP message and responds with a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.1~~.

8.2.1.1.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: CS-DCCH_DCH (state 6-5) or PS_DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state, after the test operator is prompted to make an out-going call. Before step 1, only signalling radio bearers have been established. The SS transmits a RADIO BEARER SETUP message to the UE . This message requests the establishment of radio access bearer. 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

The contents of RADIO BEARER SETUP message in this test case is identical to the message sub-type indicated by "Non speech from CELL_DCH to CELL_DCH in CS" or "Speech from CELL_DCH to CELL_DCH in CS" or "Packet to CELL_DCH from CELL_DCH in PS" in [9] TS 34.108 clause 9.

8.2.1.1.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.8 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH: Success

8.2.1.8.1 Definition

8.2.1.8.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

- 1> if the IE "Frequency info" is included in the received reconfiguration message:
  - 2> select a suitable UTRA cell according to TS 25.304 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 TS 25.304.
- 1> 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):
  - 2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";
  - 2> when the cell update procedure completed successfully:
    - 3> if the UE is in CELL_PCH or URA_PCH state:
      - 4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";
      - 4> proceed as below.
- 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 system information block type 1;
- 1> select PRACH according to TS 25.331 subclause 8.5.17;
- 1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;
- 1> use the transport format set given in system information;
- 1> if the IE "UTRAN DRX cycle length coefficient" is included in the same message:
  - 2> ignore that IE and stop using DRX.
- 1> if the contents of the variable C_RNTI is empty:
  - 2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";
  - 2> when the cell update procedure completed successfully:
    - 3> if the UE is in CELL_PCH or URA_PCH state:
      - 4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";
      - 4> proceed as below.

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;

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.

~~The UE shall correctly set up a radio bearer according to a RADIO BEARER SETUP message and responds with a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.1~~.

8.2.1.8.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.8.4 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.

Test Procedure

The UE is in CELL_DCH state, after the test operator is asked to initiate a packet-switched data call. The SS transmits a RADIO BEARER SETUP message to the UE. After the UE receives this message, it transits from CELL_DCH to CELL_FACH state. Finally the UE transmits a RADIO BEARER SETUP COMPLETE message using AM RLC. Then the UE and the SS enters the communicating state. 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	←		RADIO BEARER SETUP	SS requests test operator to make an outgoing packet-switched data call.
2	→		RADIO BEARER SETUP COMPLETE	The UE selects PRACH and S-CCPCH indicated in SIB5 or SIB6 after entering CELL FACH state.
3	←→		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

For RADIO BEARER SETUP message in step 1, use the message sub-type indicated as "Packet to CELL_FACH from CELL_DCH in PS" found in [9] TS 34.108 clause 9 with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

8.2.1.8.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message.

8.2.1.9 Radio Bearer Establishment for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.1.9.1 Definition

8.2.1.9.2 Conformance requirement

1. If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

   ……

   - if the contents of the variable C_RNTI is empty:
     - perform a cell update procedure according to clause 8.3.1 using the cause "Cell reselection";
2. If the CELL UPDATE CONFIRM message
   - does not include "RB information elements"; and
   - does not include "Transport channel information elements"; and
   - does not include "Physical channel information elements"; and
   - includes "CN information elements"; or
   - includes the IE "Ciphering mode info"; or
   - includes the IE "Integrity protection mode info"; or
   - includes the IE "New C-RNTI"; or
   - includes the IE "New U-RNTI":

   the UE shall:

   - transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.
3. In case the procedure was triggered by reception of a RADIO BEARER SETUP message, the UE shall:
   - transmit a RADIO BEARER SETUP COMPLETE as response message on the uplink DCCH using AM RLC;

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.3.1.7, 8.2.2.4.

8.2.1.9.3 Test purpose

1. To verify that the UE when receiving a RADIO BEARER SETUP message not including a value for C-RNTI initiate a cell update procedure and indicating the cause "Cell reselection".
2. To verify that the UE when the CELL UPDATE CONFIRM message does not include "RB information elements", "Transport channel information elements" nor "Physical channel information elements" but include the IE "New C-RNTI" transmit a UTRAN MOBILITY INFORMATION CONFIRM message.
3. To confirm that the UE transmits RADIO BEARER SETUP COMPLETE message after it completes the cell update procedure.

8.2.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell- Cell 1 is active.

UE: PS-DCCH_DCH (state 6-7) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER SETUP message which includes IE "Primary CPICH info" and no dedicated physical channel information, to request the UE to transit from CELL_DCH to CELL_FACH. Due to absence of the C-RNTI in the RADIO BEARER SETUP message the UE shall initiate the cell update procedure even if the UE selects the same cell as indicated by the IE "Primary CPICH info" (for FDD) or "Primary CCPCH info" (for TDD). The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. The UE transmits a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmits a RADIO BEARER SETUP COMPLETE message on the DCCH 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		
1			Void	
2			Void	
3	←		RADIO BEARER SETUP	Assigned the transition from CELL_DCH to CELL_FACH
4	→		CELL UPDATE	The value "cell reselection" set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	C-RNTI included
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		RADIO BEARER SETUP COMPLETE	
8	←→		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 3) (FDD)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9.

RADIO BEARER SETUP (Step 3) (TDD)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" as found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CCPCH info -Cell parameters ID	 4

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is 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 5)

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

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

The contents of UTRAN MOBILITY INFORMATION CONFIRM message is identical as "UTRAN MOBILITY INFORMATION CONFIRM message" as found in [9] TS 34.108 clause 9.

RADIO BEARER SETUP COMPLETE (Step 7)

The contents of RADIO BEARER SETUP COMPLETE message is identical as "RADIO BEARER SETUP COMPLETE message" as found in [9] TS 34.108 clause 9.

8.2.1.9.5 Test requirement

1. After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".
2. After step 5 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.
3. After step 6 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

8.2.1.10 Radio Bearer Establishment for transition from CELL_FACH to CELL_DCH: Success

8.2.1.10.1 Definition

8.2.1.10.2 Conformance requirement

If the UE receives:

- a RADIO BEARER SETUP message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI.

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;

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.

~~The UE shall correctly set up a radio bearer according to a RADIO BEARER SETUP message and responds with a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.1~~.

8.2.1.10.3 Test purpose

To confirm that the UE establishes a new radio bearer according to a RADIO BEARER SETUP message.

8.2.1.10.4 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.

Test Procedure

The UE is in CELL_FACH state, after SS prompts the test operator to initiate a packet-switched data call. The SS transmits a RADIO BEARER SETUP message to the UE . After the UE receives this message, it configures them and establishes the required radio bearers. 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

The contents of RADIO BEARER SETUP message in this test case is identical the message sub-type indicated by "Packet to CELL_DCH from CELL_FACH in PS" in [9] TS 34.108 clause 9.

8.2.1.10.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER SETUP COMPLETE message on the DCCH using AM RLC.

8.2.3 Radio Bearer Release

8.2.3.1 Radio Bearer Release for transition from CELL_DCH to CELL_DCH: Success

8.2.3.1.1 Definition

8.2.3.1.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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.

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;

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.

~~The UE shall correctly release a radio bearer according to a RADIO BEARER RELEASE message and responds with a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4 ~~8.2.3~~.

8.2.3.1.3 Test purpose

To confirm that the UE releases the existing radio bearer according to a RADIO BEARER RELEASE message.

8.2.3.1.4 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. The SS transmits a RADIO BEARER RELEASE message to the UE. The UE releases the radio access bearer and transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH 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	Release the radio bearer.
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

None.

8.2.3.1.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.7 Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success

8.2.3.7.1 Definition

8.2.3.7.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

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

2> select a suitable UTRA cell according to TS 25.304 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 TS 25.304.

1> 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):

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

3> if the UE is in CELL_PCH or URA_PCH state:

4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";

4> proceed as below.

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;

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.

~~The UE shall correctly release a radio bearer according to a RADIO BEARER RELEASE message and responds with a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4 ~~8.2.3~~.

8.2.3.7.3 Test purpose

To confirm that the UE release the existing the radio bearer according to a RADIO BEARER RELEASE message.

8.2.3.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DTCH+DCCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a RADIO BEARER RELEASE message to the UE. The UE releases the radio access bearer and transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH 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**		
1	←		RADIO BEARER RELEASE	SS releases the radio bearer in the fashion specified in the message and allocate common channel resources to carry the remaining radio bearers.
2				The UE selects PRACH and S-CCPCH indicated in SIB5 and SIB6 after entering CELL FACH state. The UE shall release dedicated channels, and reconfigure the remaining radio bearers using the common channel.
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 RELEASE (Step 1)

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

Information Element	**Value/remark**
New C-RNTI	0000 0000 0000 0001B

8.2.3.7.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message.

8.2.3.8 Radio Bearer Release for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.3.8.1 Definition

8.2.3.8.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

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

  2> select a suitable UTRA cell according to TS 25.304 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 TS 25.304

1> 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):

  2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> if the contents of the variable C_RNTI is empty:

  2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

  2> when the cell update procedure completed successfully:

    3> if the UE is in CELL_PCH or URA_PCH state:

      4> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Uplink data transmission";

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

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;

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.

~~The UE shall initiate the cell update procedure when the UE performs cell reselection during a radio bearer release procedure. After the UE completes cell update procedure, the UE shall continue to perform the radio bearer release procedure and correctly release the radio bearer.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.3.1.7~~8.2.3~~.

8.2.3.8.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE message after the UE completes a cell update procedure.

8.2.3.8.4 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. The SS transmits a RADIO BEARER RELEASE message to request the UE to transit from CELL_DCH to CELL_FACH. The UE initiates the cell update procedure because the UE cannot detect the specified cell in this message. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. The UE then transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmits a RADIO BEARER RELEASE COMPLETE message on the DCCH 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		
1			Void	
2			Void	
3	←		RADIO BEARER RELEASE	Assigned the transition from CELL_DCH to CELL_FACH
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		RADIO BEARER RELEASE COMPLETE	
8	←→		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 RELEASE (Step 3) (FDD)

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

Information Element	**Value/remark**
Downlink information for each radio links - Primary CPICH info - Primary scrambling code	 150

RADIO BEARER RELEASE (Step 3) (TDD)

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

Information Element	**Value/remark**
Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	 4

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is 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 5)

Use the same message type found in clause [9] TS 34.108 clause 9, with the following exceptions.

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

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.3.8.5 Test requirement

After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5 UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

After step 6 UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC.

8.2.3.9 Radio Bearer Release for transition from CELL_FACH to CELL_DCH: Success

8.2.3.9.1 Definition

8.2.3.9.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_DCH state, the UE shall, after the state transition:

1> remove any C-RNTI from MAC;

1> clear the variable C_RNTI.

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;

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.

~~The UE shall correctly release radio bearers according to a RADIO BEARER RELEASE message and responds with a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.3~~.

8.2.3.9.3 Test purpose

To confirm that an UE, in state CELL_FACH, releases the radio access bearers using common physical channel. After the release, it shall access the affected radio bearers on the DPCH.

8.2.3.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RELEASE message to the UE. In this message, SS commands the UE to release radio access bearers on common physical channel. At the same time, SS allocates DPCH to support the affected radio bearers. The UE shall release the indicated radio access bearers and transmit a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH 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				UE shall release the radio access bearers carried by common physical channel.
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 RELEASE (Step 1)

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

8.2.3.9.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message using the dedicated physical channel allocated.

8.2.3.15 Radio Bearer Release for transition from CELL_FACH to CELL_FACH: Success

8.2.3.15.1 Definition

8.2.3.15.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

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

2> select a suitable UTRA cell according to TS 25.304 on that frequency;

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;

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.

If the IE "RAB information to reconfigure" is included then the UE shall:

1> if the entry for the radio access bearer identified by the IE "CN domain identity" together with the IE "RAB Identity" in the variable ESTABLISHED_RABS already exists:

…

1> else:

2> set the variable INVALID_CONFIGURATION to TRUE.

If the variable INVALID_CONFIGURATION is set to TRUE the UE shall:

1> keep the configuration existing before the reception of the message;

1> transmit a failure response message, setting the information elements as specified below:

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

3> 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

3> clear that entry.

2> set the IE "failure cause" to "invalid configuration".

1> set the variable INVALID_CONFIGURATION to FALSE;

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

The procedure ends.

…

1> in case of reception of a RADIO BEARER RECONFIGURATION message:

2> if the radio bearer reconfiguration procedure affects several radio bearers:

3> (may) include the identities of the radio bearers for which the procedure would have been successful into the RADIO BEARER RECONFIGURATION FAILURE message.

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

~~The UE shall correctly release a radio bearer according to the RADIO BEARER RELEASE message received and responds with a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.6.4.2a, 8.2.2.11, 8.2.2.9~~8.2.3~~.

8.2.3.15.3 Test purpose

To confirm that the UE releases the existing the radio bearer(s) according to the RADIO BEARER RELEASE message.

8.2.3.15.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RELEASE message to the UE. The UE releases the radio access bearer and transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH 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**		
1	←		RADIO BEARER RELEASE	
2			Void	
3	→		RADIO BEARER RELEASE COMPLETE	
4	←		RADIO BEARER RECONFIGURATION	The IE "RAB information to reconfigure" is included with the same RAB identity as was released with the RADIO BEARER RELEASE message.
5	→		RADIO BEARER RECONFIGURATION FAILURE	The UE responds with failure, in case the RB is properly removed
6	←→		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 RELEASE

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in [9] TS 34.108 clause 9.

RADIO BEARER RECONFIGURATION (Step 4)

The contents of RADIO BEARER RECONFIGURATION message in this test case is specified below:

Information Element	Condition	Value/remark
Message Type		
RRC transaction identifier		Arbitrarily selects an integer between 0 and 3
Integrity check info		The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- message authentication code		SS calculates the value of MAC-I for this message and writes to this IE.
- RRC message sequence number		SS provides the value of this IE, from its internal counter.
Integrity protection mode info		Not Present
Ciphering mode info		Not Present
Activation time		Now
New U-RNTI		Not Present
New C-RNTI		Not Present
RRC State indicator		CELL_FACH
UTRAN DRX cycle length coefficient		Not Present
CN information info		Not Present
URA identity		Not Present
RAB information to reconfigure list		
- RAB information to reconfigure		(AM DTCH for PS domain)
- RAB identity		0000 0101B
- CN domain identity		PS domain
- NAS Synchronization Indicator		Not Present
RB information to reconfigure list		TS25.331 specifies that "Although this IE is not always required, need is MP to align with ASN.1".
- RB information to reconfigure		(Dummy)
- RB identity		1
- PDCP info		Not Present
- PDCP SN info		Not Present
- RLC info		Not Present
- RB mapping info		Not Present
- RB stop/continue		Not Present
RB information to be affected list		Not Present
UL Transport channel information for all transport channels		Not Present
Deleted TrCH information list		Not Present
Added or Reconfigured TrCH information list		Not Present
CHOICE mode		Not Present
Deleted DL TrCH information list		Not Present
Added or Reconfigured DL TrCH information list		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		Not Present
Downlink information per radio link list		Not Present

RADIO BEARER RECONFIGURATION FAILURE (step 5)

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 [9] TS 34.108 clause 9, with the following exceptions:

Information Element	Value/remark
Failure cause	Invalid configuration

8.2.3.15.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message using AM RLC on the common physical channel.

After step 4, UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message to verify that the RAB is properly removed.

8.2.3.18 Radio Bearer Release from CELL_DCH to CELL_PCH: Success

8.2.3.18.1 Definition

8.2.3.18.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_PCH or 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 TS 25.304 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 TS 25.304.

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

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

2> set the variable INVALID_CONFIGURATION to TRUE.

…

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;

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.

If the new state is CELL_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:

…

2> enter the new state (CELL_PCH);

…

~~The UE shall transmit a RADIO BEARER RELEASE COMPLETE message on uplink DCCH using AM RLC before it transits from CELL_DCH to CELL_PCH when UE receives a RADIO BEARER RELEASE message. And then, the UE shall release radio access bearers according to the RADIO BEARER RELEASE message.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.2~~.

8.2.3.18.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE before entering CELL_PCH state after it received a RADIO BEARER RELEASE message and released its radio access bearers.

8.2.3.18.4 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. The SS transmits a RADIO BEARER RELEASE message. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC and enters into CELL_PCH state. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	The UE sends this message before it completes state transition.
2a			Void	SS waits 5 seconds to allow the UE to read system information before the next step.
3	←→		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 1) (FDD)

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 UTRAN DRX cycle length coefficient	CELL_PCH 3
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	 100

RADIO BEARER RELEASE (Step 1) (TDD)

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 UTRAN DRX cycle length coefficient Downlink information for each radio links - Primary CCPCH info -Cell parameters ID	CELL_PCH 3 4

8.2.3.18.5 Test requirement

After step 1 the UE transmits a RADIO BEARER RELEASE COMPLETE message on uplink DCCH using AM RLC.

8.2.3.19 Radio Bearer Release from CELL_DCH to URA_PCH: Success

8.2.3.19.1 Definition

8.2.3.19.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RELEASE message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_PCH or 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 TS 25.304 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 TS 25.304.

1> select Secondary CCPCH according to TS 25.331 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 TS 25.331 subclause 8.6.3.2.

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

2> set the variable INVALID_CONFIGURATION to TRUE.

…

1> if the UE enters URA_PCH state, and after cell selection the criteria for URA update caused by "URA reselection" according to TS 25.331 subclause 8.3.1 is fulfilled:

2> initiate a URA update procedure according to TS 25.331 subclause 8.3.1 using the cause "URA reselection";

2> when the URA update procedure is successfully completed:

3> the procedure ends.

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;

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.

If the new state is 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:

…

2> enter the new state (URA_PCH);

…

~~The UE shall transmit a RADIO BEARER RELEASE COMPLETE message before it transits from CELL_DCH to URA_PCH when UE receives a RADIO BEARER RELEASE message. And then, the UE shall release radio access bearers according to the RADIO BEARER RELEASE message.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.2~~.

8.2.3.19.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RELEASE COMPLETE before entering URA_PCH state after it received a RADIO BEARER RELEASE message and released its radio bearers.

8.2.3.19.4 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. The SS transmits a RADIO BEARER RELEASE message. The UE transmits a RADIO BEARER RELEASE COMPLETE message using AM RLC and enters into URA_PCH state. SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RELEASE	
2	→		RADIO BEARER RELEASE COMPLETE	The UE sends this message before it completes state transition.
2a			Void	SS waits 5 seconds to allow the UE to read system information before the next step.
3	←→		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

RADIO BEARER RELEASE (Step 1) (FDD)

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 UTRAN DRX cycle length coefficient	URA_PCH 3
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	 100

RADIO BEARER RELEASE (Step 1) (TDD)

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio links	
- Primary CCPCH info	
-Cell parameters ID	4

8.2.3.19.5 Test requirement

After step 1 the UE transmits a RADIO BEARER RELEASE COMPLETE message to the UE on uplink DCCH using AM RLC.

3GPP TSG- T1 Meeting #16
Yokohama, Japan, 2nd Aug 2002

T1-020521

3GPP TSG–T1/SIG Meeting #24
Yokohama, Japan, 29th- 31st July 2002

Tdoc T1S-020454

CR-Form-v4

CHANGE REQUEST

⌘ **34.123-1 CR 269** ⌘ ev **-** ⌘ Current version: **5.0.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title: ⌘	Corrections to package 1 TCs in clause 8.4 of TS 34.123-1 as T1S-020355rev1		
Source: ⌘	Panasonic		
Work item code: ⌘	TEI	***Date:*** ⌘	9/07/2002
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)*

Reason for change: ⌘

1. Update Conformance Requirement according to core specification 25.331.
2. Editorial changes.
3. Applicability of clause 8.4.1.5 is for PS only UE.

Summary of change: ⌘

In clause 8.4.1.1

- Conformance requirement and Test Purpose are updated.
- Reference is added.
- In step 4, SS should execute procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108, and not P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2)

In clause 8.4.1.3

- Conformance requirement and test purpose are updated.
- Reference is added.
- In Initial Condition, the initial mode of UE is "Registered idle mode on PS". The sentence "depending on the CN domain supported by the UE" is invalid and deleted.
- In step 4, SS should execute procedure P14 (clause 7.4.2.6.2) specified in TS 34.108, and not P6 (clause 7.4.2.2.2).

In clause 8.4.1.5

- Test Purpose is updated.
- The Initial Condition of UE is PS-DCCH+DTCH DCH (state 6-10). This test is not applicable to CS-DCCH+DTCH DCH (state 6-9).
- In System Information Block type 11 (Step 1), the IE "Intra-frequency measurement system information" set to "Not Present" is incorrect and therefore "Not Present" is removed.

		The modification is added in T1S-020355 as below with blue marker. In clause 8.4.1.5 • In step 1 of expected sequence , “CS-DCCH+DTCH_DCH (state 6-9) or” was deleted..
Consequences if not approved:	⌘	If changes are not approved, UE might not be tested properly.

Clauses affected:	⌘	8.4.1.1, 8.4.1.3, 8.4.1.5		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ 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/3G_Specs/CRs.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 Measurement procedure

8.4.1 Measurement Control and Report

8.4.1.1 Measurement Control and Report: Intra-frequency measurement for transition from idle mode to CELL_DCH state

8.4.1.1.1 Definition

8.4.1.1.2 Conformance requirement

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

1> begin or continue monitoring the list of 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);

1> if the "intra-frequency measurement reporting criteria" IE was included in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11):

  2> begin measurement reporting according to the IE.

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 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.

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> 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):

…

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 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":
    - …
  - 2> for measurement type "UE positioning measurement":
    - …
  - 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:
        - …
      - 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:
      - 4> set the variable CONFIGURATION_INCOMPLETE to TRUE.
  - 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":

…

1> clear the entry for the MEASUREMENT CONTROL message in the table "Accepted transactions" in the variable TRANSACTIONS;

~~Upon a state transition from idle mode to CELL_DCH state, the UE shall begin or continue to monitor the list of cells assigned in the IE "intra-frequency cell info list" which is specified in System Information Block type 11 or 12 messages on BCCH. When entering CELL_DCH state, the UE shall send MEASUREMENT REPORT message(s) when the condition(s) in "intra-frequency measurement reporting criteria" IE received are fulfilled. In CELL_DCH state, if the UE receives a MEASUREMENT CONTROL message, which contains a "measurement identity" IE with the same value as the "intra-frequency measurement identity" in System Information Block Type 11 or 12 message, it shall terminate existing monitoring activities for the neighbouring cells previously known from System Information Block type 11 or 12 messages. It shall perform the measurement and reporting tasks based on the latest MEASUREMENT CONTROL message received.~~

Reference

3GPP TS 25.331 clause 8.4.1.8.1, 8.4.1.3, 8.4.2.2

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 – 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" 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	-80	-60	-60	-80	-80

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 = "CPICH 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 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.

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 = "1f", 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 dropped below the threshold value specified in the previous MEASUREMENT CONTROL message.

SS sends then a new MEASUREMENT CONTROL message to add cells 1 and 2 to the list of the cells the UE shall measure. Since the RSCP for cell 2 is below the threshold for event 1f 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 = "1B", Reporting range 8db. SS reconfigures the downlink transmission power settings according to values in column "T0" in table 8.4.1.1-1. The UE shall transmit a MEASUREMENT REPORT message when it detects that the condition for event 1b 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 ~~P3~~ P11 (clause 7.4.2.~~1~~5.2) or ~~P5~~ P13 (clause 7.4.2.~~2~~6.2) specified in TS 34.108.	
5	→		Void	
6	→		MEASUREMENT REPORT	SS waits 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 "T0" 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 1b.
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)

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	1
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells~~info list~~	
- 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 1
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection	Not Present
- Intra-frequency cell id	2
- 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 2
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	
- Qoffset1$_{s,n}$	Not Present (Default is 0dB)
- Qoffset2$_{s,n}$	Not Present
- Maximum allowed UL TX power	+33dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin	-20dB
- Qrxlevmin	-115dBm
- Intra-frequency measurement quantity	
- Filter Coefficient	Not Present (Default is 0)
- CHOICE Mode	FDD
- Measurement quantity	CPICH 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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
- 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
—- UE internal measurement system information	Not Present

MEASUREMENT REPORT (Step 6 and 6a)

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 it is absent
- SFN-SFN observed time difference	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	"Checked to see if set to within an acceptable range"
- Pathloss	Check to see if this IE is present
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 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	256 chips
- 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
- 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 1
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting indicator	FALSE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	TRUE
- Pathloss reporting indicator	FALSE
- Reporting quantities for monitored set cells	
- SFN-SFN observed time difference reporting indicator	No report
- 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 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	
- Triggering condition 1	1f
- Triggering condition 2	Monitored set cells

Information Element	Value/Remark
- Reporting range	Not Present
- Cells forbidden to affect reporting range	Not Present
- W	Not Present
- Hysteresis	Not Present
- Threshold used frequency	1 dB
- Reporting deactivation threshold	-70 dBm
- Replacement activation threshold	Not Present
- Time to trigger	Not Present
- Amount of reporting	0 msec
- Reporting interval	Not Present
- Reporting cell status	Not 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
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 10)

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	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
- SFN-SFN observed time difference	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 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 3)
- Cell Identity	Check to see if it is absent
- SFN-SFN observed time difference	Check to see if this IE 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 "1f"
- 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 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	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/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	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
- SFN-SFN observed time difference	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 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
- SFN-SFN observed time difference	Check to see if this IE 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 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
- SFN-SFN observed time difference	Check to see if this IE 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 "1f"
- 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	256 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 cell id	
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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	1b
- Triggering condition 1	Monitored Cells
- Triggering condition 2	Not Present
- Reporting range	8 dB

Information Element	Value/Remark
- Cells forbidden to affect reporting range	Not Present
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	Not Present
- Replacement activation threshold	Not Present
- Time to trigger	5000 msec
- Amount of reporting	Not Present
- Reporting interval	Not Present
- Reporting cell status	Not Present
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 14)

Information Element	Value/Remarks
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 "1b"
- 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 2 has dropped below 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 '1f' 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 dropped below the threshold stated in the MEASUREMENT CONTROL message transmitted by the SS in step 7. 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 MEASURMEASUREMENT REPORT message containing IE "Event results", indicating the triggering of event '1b' by cell 2. The MEASUREMENT REPORT message shall not contain any measured results.

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

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.

~~The UE shall begin monitoring cells listed in the IE "intra-frequency cell info list" received in System Information Block type 11 or 12 messages, upon a transition from idle mode to CELL_FACH state. If IE "intra-frequency measurement reporting criteria" is specified in System Information Block Type 11 or 12 messages, the UE shall store this information and shall apply these reporting rules in a subsequent transition to CELL_DCH state. If the UE receives IE "Intra-frequency reporting for RACH reporting" and IE "Maximum number of Reported cells on RACH" in System Information Block type 11 or 12 messages, the UE shall use these measurement information and report the measured results when sending messages on RACH.~~

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

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.

~~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.

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 8.4.1.3-1 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	-70

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". The key measurement parameters are as follow: measurement type = "intra-frequency measurement", measurement quantity = "CPICH RSCP", reporting mode = "event reporting". 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 ~~P6~~ P14 (clause 7.4.2.~~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)

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
- 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	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
- 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 2
- 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
- Intra-frequency Measurement quantity	
- Filter Coefficient	0
- CHOICE Mode	FDD
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- Cell synchronisation information reporting	TRUE

Information Element	Value/Remark
indicator	
- 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
- UE internal measurement system information	Not Present

CELL UPDATE (Step 7)

Information Element	Value/Remarks
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 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/Remarks
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
- SFN-SFN observed time difference	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is present and if the reported cell synchronisation information is correct
- 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 it is absent
- SFN-SFN observed time difference	Check to see if this IE is absent
- Cell synchronisation information	Check to see if this IE is absent
- Primary CPICH Info	Check to see if it's the same code for cell 1
- Primary Scrambling Code	Check to see if this IE is absent
- 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
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.

8.4.1.5 Measurement Control and Report: Intra-frequency measurement for transition from CELL_DCH to CELL_FACH state

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 – Cell 1 and cell 2 are active, while cell 3 is switched off..

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 8.4.1.5-1 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	-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 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 1, 2 and 3 in IE "Cell measured results" and the triggering of event '1a' on cell 3 in IE "Event results".

Expected Sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1	←		Master Information Block System Information Block type 11	UE is in ~~CS-DCCH+DTCH_DCH (state 6-9) or~~ PS-DCCH+DTCH_DCH (state 6-10) in cell 1. System Information Block Type 11 to be broadcast does not specify any measurement type to be configured in the UE in CELL_DCH.
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.
9	←		Master Information Block System Information Block type 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.

Step	Direction		Message	Comment
	UE	SS		
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

MASTER INFORMATION BLOCK (Step 1)

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 (Step 1)

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	~~Not Present~~
- Intra-frequency measurement identity	Not present
~~-~~- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cells
- New intra-frequency cells~~info list~~	
- 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
- 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 ~~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
- UE internal measurement system information	Not Present

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	
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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/Remarks
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
- SFN-SFN observed time difference	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 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
- SFN-SFN observed time difference	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 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	Remove no intra-frequency cells
- New intra-frequency cells~~info list~~	
- 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
- 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	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	
- 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
- UE internal 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	Remove no intra-frequency cells
- New intra-frequency cells	
- 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
- 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 measurement for RACH reporting	
- SFN-SFN observed time difference	No report
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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
- 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	20.0 dB
- Cells forbidden to affect reporting	Not present
- W	0.0
- Hysteresis	1.0 dB

Information Element	Value/Remark
- 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	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

SYSTEM INFORMATION CHANGE INDICATION (Step 10)

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

CELL UPDATE (Step 11)

Information Element	Value/Remarks
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	Not Checked
- 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/Remarks
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
- SFN-SFN observed time difference	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 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
- SFN-SFN observed time difference	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 it is absent
- SFN-SFN observed time difference	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
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 15, 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 1, 2 and 3.

3GPP TSG-T1 Meeting #16
Yokohama, Japan, August 2nd 2002

Tdoc ⌘ T1-020522

3GPP TSG-T1/SIG Meeting #24
Yokohama, Japan, 29-31 July 2002

Tdoc ⌘ T1S-020492

CR-Form-v7

CHANGE REQUEST

⌘ **TS 34.123-1 CR 270** ⌘ **rev -** ⌘ Current version: **5.0.1** ⌘

*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 Clause 8.1.10 for Package 2 (System Information)			
Source: ⌘	Ericsson, Panasonic.			
Work item code: ⌘	TEI		***Date:*** ⌘	29/07/2002
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: ⌘ Reason for changes from Ericsson CR T1S-020409:

Section 8.1.10 contains a list of System Information for the “Minimum” configuration and the “Maximum” configuration. This System Information is based on the System Information that exists in section 6 of 34.108. This System Information in 34.108 has changed but the changes are not reflected in section 8.1.10 of 34.123.

Instead of explicitly outlining all of the System for the “Minimum” configuration and the “Maximum” configuration, section 8.1.10 shall refer to the System Information in section 6 of 34.108 and outline the changes required to that System Information for the tests required there.

The existing schedules for System Information listed in section 8.1.10 and in section 6 of 34.108 do not allow for all segment combinations. New schedules are required to ensure that all these segment combinations are tested.

Reason for Changes from Panasonic CR T1S-020356:

1. As SIB message contents in TS34.108 were revised at the last T1SIG

	meeting, these are reflected into specific message contents in TS34.123-1. 2. The range of Intra-frequency measurement identity is 1 to 16.
Summary of change: ⌘	Summary of changes from Ericsson CR T1S-020409: The following changes to section 8.1.10 are proposed: 1) Refer to the relevant System Information configurations in section 6 of 34.108 instead of explicitly listing the System Information required for the tests in section 8.1.10. Indicate the changes required to this System Information in section 8.1.10. Configuration 1 in 34.108 can be used for the “Minimum” configuration (includes MIB, SIB1, SIB3, SIB5, SIB7, SIB11) and the “Maximum” configuration (includes the entire Configuration 1 plus one “dummy” SIB). 2) New schedules are required to ensure that all segment combinations are tested. Summary of changes from Panasonic CR T1S-020356: 1. All SIB definition except for SIB 5 that includes SCCPCHs information for separated PCH and FACHs are revised according to TS34.108. 2. SIB 5 for separated PCH and FACHs is defined as 2 SCCPCHs can be configured according to TS34.108 clause 6.10.2.4.3.1 and 6.10.2.4.3.2. 3. Intra-frequency measurement identity in SIB 11 and 12 should be changed from 0 to 1. All changes from Panasonic CR except the renaming “SIB and SB type” were removed as the Ericsson CR now uses default message contents instead.
Consequences if not approved: ⌘	Faulty system Information in section 8.1.10 is not corrected. A schedule that incorporates all segment combinations is not defined therefore all segment combinations are not tested.

Clauses affected: ⌘	Section 8.1.10.				
	Y	**N**			
Other specs affected: ⌘		**X**	Other core specifications	⌘	
		X	Test specifications		
		X	O&M Specifications		
Other comments: ⌘	Affects R99, R4 and R5 UE 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.

8.1.10 Broadcast of system information

8.1.10.1 Dynamic change of segmentation, concatenation & scheduling and handling of unsupported information blocks

8.1.10.1.1 Definition

8.1.10.1.2 Conformance requirement

1. The RRC layer in the UE shall perform re-assembly of segments. All segments belonging to the same master information block, scheduling block or system information block shall be assembled in ascending order with respect to the segment index. When all segments of the master information block, scheduling block or a system information block have been received, the UE shall perform decoding of the complete master information block, scheduling block or system information block.

~~NOTE: There are 4 segment types and 11 different SYSTEM INFORMATION messages to interprete when re-assembling segments. There are many alternaive SIB position offsets and repetition rates.~~

2. For all system information blocks or scheduling blocks that are supported by the UE referenced in the master information block or the scheduling blocks, the UE shall perform the following actions:

   ……..

   - read and store the IEs of that system information block;

NOTE: There are options with and without scheduling blocks.

3. For system information blocks, not supported by the UE …..

   - skip reading this system information block;

   - skip monitoring changes to this system information block.

4. However, to enable future introduction of new system information blocks, the UE shall also be able to receive system information blocks other than the ones indicated within the scheduling information. The UE may ignore contents of such system information block.

Reference

3GPP TS 25.331 clause 8.1.1.1.3, 8.1.1.1.4, 8.1.1.1.5, 8.1.1.5 and 8.1.1.6.

8.1.10.1.4 Test Purpose

1. To verify that dynamic change of System Information is identified, new information read and used.

2. To verify ~~that the UE can use "all" combinations of segmentation, concatenation and scheduling.~~that the UE can support all segment types and "all" segment combinations.

3. To verify that the UE can dynamically use different configurations

4. To verify that the UE properly uses combinations of Default and assigned values.

NOTE: There are 4 segment types and 11 different SYSTEM INFORMATION messages to ~~interprete~~ interpret when re-assembling segments. There are many ~~alternaive~~ alternative SIB position offsets and repetition rates.

The allowed segment types are:

- First segment
- Subsequent segment
- Last segment
- Complete

The allowed segment combinations are:

1. No segment
2. First segment
3. Subsequent segment
4. Last segment
5. Last segment + First segment
6. Last segment + one or several Complete
7. Last segment + one or several Complete + First segment
8. One or several Complete
9. One or several Complete + First segment
10. One Complete of size 215 to 226 (not tested)
11. Last segment of size 215 to 222 (not tested)

8.1.10.1.5 Method of test

Alternate two sets of System Information and generate a call after one or the other set has been broadcasted.

These two sets of System Information are based on the System Information specified in 34.108, section 6.

A "Minimum" configuration and a "Maximum" configuration of System Information are defined. The "Minimum" configuration does not contain all of the Information Blocks defined for Configuration 1 in section 6 of 34.108, while the "Maximum" configuration does. The contents of the SIBs remains the same (for the "Minimum" configuration, the contents of SIB11 changes for the "Maximum" configuration) while the contents of the MIB and SB is altered depending on the nature of the test, i.e. the schedule changes between the "Minimum" and "Maximum" configurations.

The four segment types and nine of the eleven segment combinations are tested using the two configurations (segment combinations 10 and 11 are not tested).

~~One set contains a "minimum" of data and the other a "maximum". The "maximum" set contains all information blocks including one not yet defined in the R99 release. It also includes all 4 segment types and 11 different SYSTEM INFORMATION messages plus a combination of default and non-default values.~~

NOTE: The decoding of system information in the UE is only measurable by functional tests. A large number of functions utilize system information. An extensive test of the system information decoding thus creates a large number of functional tests, which is impractical. This test specification uses a "sample test", where only a few functions are invoked.

Initial Condition

System Simulator: ~~2 cells~~ 3 cells (C1, C2, C3)
UE: Idle state (state 2 or state 3 or state 7) as specified in clause 7.4 of TS 34.108 with a CN UE identity (set to IMSI), depending on the CN domain(s) supported by the UE.

Test procedure

a) SS broadcasts the "Minimum" system information. The UE selects C1, set the parameters (cell selection/reselection parameters in SIB3) associated with the S criteria to ensure that C1 is selected.

~~b) RRC Connection establishment according to clause 8.1.2.1.4.~~

b~~c~~) Call setup according to clause 7.2.3.2 in TS 34.108~~10.1.3, procedure 1.~~

c~~d~~) Disconnect call according to clause 10.1.2.6.4. UE shall enter ~~Cell_PCH~~ IDLE state and performs cell reselection. C1 is selected again.

d~~e~~) SS broadcasts the "Maximum" system information and notifies the UE as described in clause 8.1.1.5. The UE reads all relevant new/changed Information Blocks. Set the cell selection/reselection parameters in SIB3 and those associated with C2 in SIB11 to ensure that C2 is a better option for the UE. The UE performs a cell reselection (selects C2).

~~f)~~e)Call Setup according to clause 10.1.3, procedure 1.

Specific message content for "Minimum" configuration

The Minimum configuration is the same as the Configuration 1 System Information on 34.108, section 6 with some differences:

- Only SIB1, SIB3, SIB5, SIB7, SIB11 are used, i.e. the Minimum number of SIBs is used.
- No SB is used, all scheduling information is contained in the MIB. The contents of this changed MIB are shown below.
- A different schedule is used. Details below.
- SIB11 lists eight cells (one serving cell and seven neighbouring cells). Only the first three of these are considered relevant.

~~The minimum set has:~~
Other characteristics of the "minimum" configuration are:
~~- "minimum" number of system information blocks~~

- no "unknown future" blocks

~~- no scheduling blocks~~

~~- separate FACH and PCH channels~~

- First Segment, First Segment (short), Last Segment and Last Segment (short) are used

~~There is no SIB4. SIB3 data contains Cell 1 data with default values and Cell 2 data with assigned values, so that Cell1 shall be selected.~~

The following tables show (based on SIB_REP and SIB_POS in the MIB and SB) the schedule used for these tests.

Table 1: The schedule in this table incorporates segment combinations 1, 2, 3, 4, 7, 8.

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB6	SIB7	SIB11	SIB12	SIB18
SIB_REP	8	16	64	64	64	64	64	64	16	64	64	64
SEG_COUNT	1	1	1	1	1	1	3	3	1	3	3	1

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB		SIB7		MIB			

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB		SIB7/SIB3	SIB1	MIB			SIB11

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SIB11	SIB11/SIB7/SIB5	SIB5	MIB	SIB5		

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB		SIB7		MIB			

Contents of Master Information Block PLMN type is the case of GSM-MAP

- MIB value tag	1
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codesstored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	1
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	22
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	20
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	36
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB type	System Information Type 5
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	30
- SIB_POS offset info	
- SIB_OFF	4
- SIB_OFF	2
- SIB and SB type	System Information Type 11

Specific message content for "Maximum" configuration

The "Maximum" configuration is the same as the Configuration 1 System Information on 34.108, section 6 with some differences:

- A different schedule is used. Details below.
- SIB11 lists eight cells (one serving cell and seven neighbouring cells). Only the first three of these are considered relevant.

~~The maximum set has:~~

Other characteristics of the maximum configuration are:

- ~~"maximum" number of system information blocks~~
- one "unknown future" block~~s~~. A "dummy" SIB (SIB50) is added. This is used to ensure that the UE can receive an Information Block that it does not support and still process the Information Blocks that it does support in the correct way.
- ~~scheduling blocks~~
- ~~combined FACH and PCH channels~~
- First Segment, First Segment (short), Last Segment and Last Segment (short) are used
- ~~SIB 3 is as in "minimum" set, but SIB4 is included with information as follows. Cell 1 has assigned values and Cell 2 default values, so that Cell2 shall be selected.~~

The following tables show (based on SIB_REP and SIB_POS in the MIB and SB) the schedule used for these tests.

Table 2: The schedule in this table incorporates segment combinations 1, 2, 3, 4, 5, 6, 8, 9.

Block Type	MIB	SB1	SIB1	SIB2	SIB3	SIB4	SIB5	SIB6	SIB7	SIB11	SIB12	SIB18
SIB_REP	8	16	64	64	64	64	64	64	16	64	64	64
SEG_COUNT	1	1	1	1	1	1	3	3	1	3	3	1

Frame No / SIB_POS	0	2	4	6	8	10	12	14
Block Type	MIB	SB1	SIB7/SIB6	SIB6	MIB	SIB6	SIB3	

Frame No / SIB_POS	16	18	20	22	24	26	28	30
Block Type	MIB	SB1	SIB11	SIB11	MIB	SIB11/SIB12	SIB12	SIB12

Frame No / SIB_POS	32	34	36	38	40	42	44	46
Block Type	MIB	SB1	SIB7/SIB18	SIB5	MIB	SIB5	SIB5/SIB2	

Frame No / SIB_POS	48	50	52	54	56	58	60	62
Block Type	MIB	SB1	SIB4		MIB	SIB1	SIB50	

Contents of Master Information Block PLMN type is the case of GSM-MAP

- MIB value tag	1
- Supported PLMN types	
- PLMN type	GSM-MAP
- PLMN identity	
- MCC digit	Set to the same Mobile Country Codes stored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- MNC digit	Set to the same Mobile Network Codesstored in the test USIM card (TS 34.108 clause 8.3.2.2 EF IMSI(IMSI)).
- ANSI-41 Core Network information	Not Present
- References to other system information blocks and scheduling blocks	
- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value Tag
- Cell Value tag	1
- Scheduling	
- SEG_COUNT	1
- SIB_REP	16
- SIB_POS	2
- SIB_POS offset info	Not Present – use default
- SIB type	Scheduling Block 1
- Scheduling information	
- CHOICE Value tag	PLMN Value tag
- PLMN Value tag	1
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	58
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 1
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	44
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 2
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	12
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 3
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	52
- SIB_POS offset info	Not Present – use default
- SIB type	System Information Type 4
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	38
- SIB_POS offset info	

- SIB_OFF	4
- SIB_OFF	2
- SIB type	System Information Type 5

Contents of Scheduling Block 1 (FDD)

- References to other system information blocks	
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	4
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB and SB type	System Information Type 6
- Scheduling information	
- CHOICE Value tag	Not Present
- SEG_COUNT	1
- SIB_REP	32
- SIB_POS	4
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 7
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	20
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	4
- SIB and SB type	System Information Type 11
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	3
- SIB_REP	64
- SIB_POS	26
- SIB_POS offset info	
- SIB_OFF	2
- SIB_OFF	2
- SIB and SB type	System Information Type 12
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	36
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 18
- Scheduling information	
- CHOICE Value tag	Cell Value tag
- Cell Value tag	1
- SEG_COUNT	1
- SIB_REP	64
- SIB_POS	60
- SIB_POS offset info	Not Present
- SIB and SB type	System Information Type 50

Contents of System Information Block type 11 (FDD)

Same contents as that defined in Configuration 1, Section 6, 34.108 except for the following:

Information Element	**Value/remark**
Qqualmin	-18 (for first adjacent cell)

Contents of System Information Block type 50

Information Element	**Value/remark**
Data 1 Data 3	

~~Contents of Master Information Block PLMN type is the case of GSM-MAP~~

~~**Information Element**~~	~~**Value/remark**~~
~~- MIB value tag~~	~~1~~
~~- Supported PLMN types~~	
~~-- PLMN type~~	~~GSM-MAP~~
~~--- PLMN identity~~	
~~---- MCC digit~~	~~Set to the same Mobile Country Codes stored in the test USIM card.~~
~~---- MNC digit~~	~~Set to the same Mobile Network Codesstored in the test USIM card.~~
~~- ANSI-41 Core Network information~~	~~Not Present~~
~~- References to other system information blocks and scheduling blocks~~	
~~-- References to other system information blocks~~	
~~-- Scheduling information~~	
~~--- CHOICE Value tag~~	~~PLMN Value tag~~
~~---- PLMN Value tag~~	~~1~~
~~--- SEG_COUNT~~	~~2~~
~~--- SIB_REP~~	~~128~~
~~--- SIB_POS~~	~~10~~
~~--- SIB_POS offset info~~	
~~---- SIB_OFF~~	~~2~~
~~-- SIB and SB type~~	~~System Information Type 1~~
~~-- Scheduling information~~	
~~--- CHOICE Value tag~~	~~Cell Value tag~~
~~--- Cell Value tag~~	~~1~~
~~--- SEG_COUNT~~	~~1~~
~~--- SIB_REP~~	~~64~~
~~--- SIB_POS~~	~~6~~
~~--- SIB_POS offset info~~	~~Not Present – use default~~
~~-- SIB and SB type~~	~~System Information Type 3~~
~~-- Scheduling information~~	
~~--- CHOICE Value tag~~	~~Cell Value tag~~
~~--- Cell Value tag~~	~~1~~
~~--- SEG_COUNT~~	~~3~~
~~--- SIB_REP~~	~~128~~
~~--- SIB_POS~~	~~26~~
~~--- SIB_POS offset info~~	
~~---- SIB_OFF~~	~~2~~
~~---- SIB_OFF~~	~~2~~
~~-- SIB and SB type~~	~~System Information Type 5~~
~~-- Scheduling information~~	
~~--- CHOICE Value tag~~	~~Cell Value tag~~
~~--- Cell Value tag~~	~~1~~
~~--- SEG_COUNT~~	~~1~~
~~--- SIB_REP~~	~~128~~
~~--- SIB_POS~~	~~22~~
~~--- SIB_POS offset info~~	~~Not Present – use default~~
~~-- SIB and SB type~~	~~System Information Type 7~~
~~-- Scheduling information~~	
~~--- CHOICE Value tag~~	~~Cell Value tag~~
~~--- Cell Value tag~~	~~1~~
~~--- SEG_COUNT~~	~~2~~
~~--- SIB_REP~~	~~128~~
~~--- SIB_POS~~	~~58~~
~~--- SIB_POS offset info~~	
~~---- SIB_OFF~~	~~2~~
~~-- SIB and SB type~~	~~System Information Type 11~~

~~Contents of System Information Block type 1 (supported PLMN type is GSM-MAP)~~

~~**Information Element**~~	~~**Value/remark**~~
~~- CN common GSM-MAP NAS system information~~	
~~- GSM-MAP NAS system information~~	~~Contains the PLMN Identity and Location Area Code~~
~~- MCC digit~~	~~Set to the same Mobile Country Code stored in test USIM card.~~
~~- MNC digit~~	~~Set to the same Mobile Network Code stored in test USIM card.~~
~~- Location area code~~	~~0001H~~
~~- CN domain system information~~	
~~- CN domain identity~~	~~PS~~
~~- CHOICE CN Type~~	~~GSM-MAP~~
~~- CN domain specific NAS system information~~	
~~- GSM-MAP NAS system information~~	~~T.B.D~~
~~- CN domain specific DRX cycle length coefficient~~	~~7~~
~~- CN domain identity~~	~~CS~~
~~- CHOICE CN Type~~	~~GSM-MAP~~
~~- CN domain specific NAS system information~~	
~~- GSM-MAP NAS system information~~	~~T.B.D~~
~~- CN domain specific DRX cycle length coefficient~~	~~7~~
~~- UE Timers and constants in idle mode~~	
~~-T300~~	~~400 milliseconds~~
~~-N300~~	~~7~~
~~-T312~~	~~10 seconds~~
~~- N312~~	~~200~~
~~- UE Timers and constants in connected mode~~	
~~- T301~~	~~2000 milliseconds~~
~~- N301~~	~~2~~
~~- T302~~	~~4000 milliseconds~~
~~- N302~~	~~3~~
~~- T304~~	~~1000 milliseconds~~
~~- N304~~	~~3~~
~~- T305~~	~~60 minutes~~
~~- T307~~	~~50 seconds~~
~~- T308~~	~~320 milliseconds~~
~~- T309~~	~~8 seconds~~
~~- T310~~	~~320 milliseconds~~
~~- N310~~	~~5~~
~~- T311~~	~~500 milliseconds~~
~~- T312~~	~~5 seconds~~
~~- N312~~	~~200~~
~~- T313~~	~~10 seconds~~
~~- N313~~	~~20~~
~~- T314~~	~~20 seconds~~
~~- T315~~	~~30 seconds~~
~~- N315~~	~~200~~
~~- T316~~	~~50 seconds~~
~~- T317~~	~~1800 seconds~~

~~Contents of System Information Block type 2~~

~~Not included in "minimum" configuration~~

~~Contents of System Information Block type 3 (FDD)~~

~~Information Element~~	~~Value/remark~~
~~- SIB4 indicator~~	~~TRUE~~
~~- Cell identity~~	~~0000 0000 0000 0000 0000 0000 0001B~~
~~- Cell selection and re-selection info~~	
~~- - Mapping info~~	
~~- - - Mapping List~~	
~~- - - RAT~~	~~UTRA FDD~~
~~- - - - Mapping Function Parameter List~~	~~1~~
~~- - - - - Function type~~	~~Linear~~
~~- - - - - Map_parameter_1~~	~~1~~
~~- - - - - Map_parameter_2~~	~~1~~
~~- - - - - Upper_limit~~	~~1~~
~~- - - Cell selection_and_reselection_quality_-measure~~	~~CPICH Ec/N0~~
~~- - CHOICE mode~~	~~FDD~~
~~- - - Sintrasearch~~	~~16 dB~~
~~- - - Sintersearch~~	~~16 dB~~
~~- - - SsearchHCS~~	~~10 dB~~
~~- - - RAT List~~	~~For conformance testing in Japan, this IE is omitted. For conformance testing in European countries, this IE is present with the following values.~~
~~- - - - RAT identifier~~	~~GSM~~
~~- - - - Ssearch,RAT~~	~~-105 dB~~
~~- - - - SHCS,RAT~~	~~Not Present~~
~~- - - $S_{limit,ShearchRAT}$~~	~~Not Present~~
~~- - - $Qhyst1_{s}$~~	~~0 dB~~
~~- - - Qhyst2s~~	~~0 dB~~
~~- - - Treselections~~	~~0 seconds~~
~~- - - HCS Serving cell information~~	
~~- - - - HCS_PRIO~~	~~0~~
~~- - - - QHCS~~	~~0~~
~~- - - - TCR_{MAX}~~	~~Not used~~
~~- - - - NCR~~	~~Not Present~~
~~- - - - $TCMAXH_{yst}$~~	~~Not Present~~
~~- - - Maximum allowed UL TX power~~	~~33dBm~~
~~- - - CHOICE mode~~	~~FDD~~
~~- - - - Qqualmin~~	~~-20 dB~~
~~- - - - Qrxlevmin~~	~~-115 dBm~~
~~- Cell Access Restriction~~	
~~- - Cell barred~~	~~Not barred~~
~~- - Cell Reserved for operator use~~	~~Not reserved~~
~~- - Cell Reserved for SoLSA exclusive use~~	~~Not reserved~~
~~- - Access Class Barred0~~	~~Not barred~~
~~- - Access Class Barred1~~	~~Not barred~~
~~- - Access Class Barred2~~	~~Not barred~~
~~- - Access Class Barred3~~	~~Not barred~~
~~- - Access Class Barred4~~	~~Not barred~~
~~- - Access Class Barred5~~	~~Not barred~~
~~- - Access Class Barred6~~	~~Not barred~~
~~- - Access Class Barred7~~	~~Not barred~~
~~- - Access Class Barred8~~	~~Not barred~~
~~- - Access Class Barred9~~	~~Not barred~~
~~- - Access Class Barred10~~	~~Not barred~~
~~- - Access Class Barred11~~	~~Not barred~~
~~- - Access Class Barred12~~	~~Not barred~~
~~- - Access Class Barred13~~	~~Not barred~~
~~- - Access Class Barred14~~	~~Not barred~~
~~- - Access Class Barred15~~	~~Not barred~~

~~Contents of System Information Block type 4 in connected mode (FDD)~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block type 5 (FDD)~~

~~Information Element~~	~~Value/remark~~
~~- SIB6 indicator~~	~~TRUE~~
~~- PICH Power offset~~	~~-5 dB~~
~~- CHOICE Mode~~	~~FDD~~
~~- - AICH Power offset~~	~~0dB~~
~~- Primary CCPCH info~~	
~~- - - TX Diversity indicator~~	~~FALSE~~
~~- PRACH system information list~~	
~~- PRACH system information~~	
~~- - PRACH info~~	
~~- - - CHOICE mode~~	~~FDD~~
~~- - - - Available Signature~~	~~'0000 0000 1111 1111'B~~
~~- - - - Available SF~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Preamble scrambling code number~~	~~0~~
~~- - - - Puncturing Limit~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - 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~~	~~(This IE is repeated for TFI number)~~
~~- - - - RLC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - - Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - - CHOICE Mode~~	~~FDD~~
~~- - - - CHOICE Logical Channel List~~	~~ALL~~
~~- - - Semi-static Transport Format information~~	
~~- - - - Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - RACH TFCS~~	~~(This IE is repeated for TFC number.)~~
~~- - - Normal~~	
~~- - - - TFCI Field 1 information~~	
~~- - - - - CHOICE TFCS representation~~	~~Addition~~
~~- - - - - - TFCS addition information~~	
~~- - - - - - - CHOICE CTFC Size~~	~~Number of bits used must be enough to cover all combinations of CTFC from clause 6.10.~~
~~- - - - - - - - CTFC information~~	~~Refer to clause 6.10 Parameter Set~~
~~- - - - - - - - Power offset information~~	
~~- - - - - - - - - CHOICE Gain Factors~~	~~Signalled Gain Factor~~
~~- - - - - - - - - - Gain factor ßc~~	~~0~~
~~- - - - - - - - - - Gain factor ßd~~	~~0~~
~~- - - - - - - - - - Reference TFC ID~~	~~Not Present~~
~~- - - - - - - - - Power offset Pp-m~~	~~0dB~~
~~- - PRACH partitioning~~	
~~- - - Access Service Class~~	
~~- - - - ASC Setting~~	
~~- - - - - CHOICE mode~~	~~FDD~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#0)~~
~~- - - - - - Available signature End Index~~	~~7 (ASC#0)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - - - 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~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#2)~~
~~- - - - - - Available signature End Index~~	~~7 (ASC#2)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#3)~~

~~- - - - - - Available signature End Index~~	~~7 (ASC#3)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#4)~~
~~- - - - - - Available signature End Index~~	~~7 (ASC#4)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#5)~~
~~- - - - - - Available signature End Index~~	~~7 (ASC#5)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#6)~~
~~- - - - - - Available signature End Index~~	~~7 (ASC#6)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#7)~~
~~- - - - - - Available signature End Index~~	~~7 (ASC#7)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - 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)~~
~~- - Primary CPICH DL TX power~~	~~Reference to clause 6.10 Parameter Set~~
~~- - Constant value~~	~~Reference to clause 6.10 Parameter Set~~
~~- - PRACH power offset~~	
~~- - - Power Ramp Step~~	~~3dB~~
~~- - - Preamble Retrans Max~~	~~2~~
~~- - RACH transmission parameters~~	
~~- - - Mmax~~	~~2~~
~~- - - NB01min~~	~~3 slot~~
~~- - - NB01max~~	~~10 slot~~
~~- - AICH info~~	
~~- - - Channelisation code~~	~~SF-1(SF is reference to clause 6.10 Parameter Set)~~
~~- - - STTD indicator~~	~~FALSE~~
~~- - - AICH transmission timing~~	~~0~~
~~- Secondary CCPCH system info~~	
~~- - Secondary CCPCH info~~	
~~- - - Primary CPICH usage for channel estimation~~	~~Primary CPICH may be used~~
~~- - - Secondary CPICH info~~	~~Not Present~~
~~- - - Secondary scrambling code~~	~~Not Present~~
~~- - - STTD indicator~~	~~FALSE~~
~~- - - Spreading factor~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - Code number~~	~~SF-1(SF is reference to clause 6.10 Parameter Set)~~
~~- - - Pilot symbol existence~~	~~FALSE~~
~~- - - TFCI existence~~	~~TRUE~~
~~- - - Fixed or Flexible position~~	~~Flexible~~
~~- - - Timing offset~~	~~0~~
~~- - TFCS~~	~~(This IE is repeated for TFC number for PCH and FACH.)~~
~~- - - Normal~~	
~~- - - - TFCI Field 1 information~~	
~~- - - - - CHOICE TFCS representation~~	~~Addition~~
~~- - - - - - TFCS addition information~~	
~~- - - - - - - CHOICE CTFC Size~~	~~Number of bits used must be enough to cover all combinations of CTFC from clause 6.10.~~
~~- - - - - - - - CTFC information~~	~~Refer to clause 6.10 Parameter Set~~
~~- - - - - - - - Power offset information~~	~~Not Present~~

~~- FACH/PCH information~~	
~~- - Transport Channel Identity~~	~~12 (for PCH)~~
~~- - TFS~~	~~(PCH)~~
~~- - CHOICE Transport channel type~~	~~Common transport channels~~
~~- - - Dynamic Transport format information~~	~~(This IE is repeated for TFI number.)~~
~~- - - RLC Size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CHOICE Mode~~	~~FDD~~
~~- - - CHOICE Logical Channel List~~	~~ALL~~
~~- - - Semi-static Transport Format information~~	
~~- - - - Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - Transport Channel Identity~~	~~13 (for FACH)~~
~~- - TFS~~	~~(FACH)~~
~~- - CHOICE Transport channel type~~	~~Common transport channels~~
~~- - - Dynamic Transport format information~~	~~(This IE is repeated for TFI number.)~~
~~- - - RLC Size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CHOICE Mode~~	~~FDD~~
~~- - - CHOICE Logical Channel List~~	~~ALL~~
~~- - - Semi-static Transport Format information~~	
~~- - - - Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - CTCH indicator~~	~~FALSE~~
~~- - PICH info~~	
~~- - - Channelisation code~~	~~SF-1(SF is reference to clause 6.10 Parameter Set)~~
~~- - - Number of PI per frame~~	~~18~~
~~- - - STTD indicator~~	~~FALSE~~
~~- CBS DRX Level 1 information~~	~~Not Present~~

~~Contents of System Information Block type 6 in connected mode (FDD)~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block type 7 (FDD)~~

~~**Information Element**~~	~~**Value/remark**~~
~~CHOICE Mode~~	~~FDD~~
~~- UL interference~~	~~-100dBm~~
~~- PRACHs listed in system information block type5~~	
~~- - Dynamic persistence level~~	~~2~~
~~- PRACHs listed in system information block type6~~	
~~- - Dynamic persistence level~~	~~2~~
~~- Expiration Time Factor~~	~~Not Present – use default value of 1~~

~~Contents of System Information Block type 8, 9 (only for FDD)~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block type 10 (only for FDD)~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block type 11 (FDD)~~

~~**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 RSCP~~
~~- - Intra-frequency measurement system information~~	
~~- - - Intra-frequency measurement identity~~	~~0~~
~~- - - Intra-frequency cell info list~~	
~~- - - - CHOICE intra-frequency cell removal~~	~~Remove no intra-frequency cells~~
~~- - - - New intra-frequency cells~~	
~~- - - - - Intra-frequency cell id~~	~~0~~
~~- - - - - Cell info~~	
~~- - - - - - Cell individual offset~~	~~0dB~~
~~- - - - - - Reference time difference to cell~~	~~Not Present~~
~~- - - - - - Read SFN indicator~~	~~FALSE~~
~~- - - - - - CHOICE mode~~	~~FDD~~
~~- - - - - - - Primary CPICH info~~	
~~- - - - - - - - Primary scrambling code~~	~~The current value plus 50(When the current cell is cell No.8 then minus 50)~~
~~- - - - - - - Primary CPICH TX power~~	~~Not Present~~
~~- - - - - - - TX Diversity indicator~~	~~FALSE~~
~~- - - - - - - Cell Selection and Re-selection info~~	
~~- - - - - - - - Qoffset1$_{s,n}$~~	~~0 dB~~
~~- - - - - - - - Qoffset2s,n~~	~~0 dB~~
~~- - - - - - - - Maximum allowed UL TX power~~	~~33 dBm~~
~~- - - - - - - - HCS neighbouring cell information~~	~~Not Present~~
~~- - - - - - - - CHOICE mode~~	~~FDD~~
~~- - - - - - - - - Qqualmin~~	~~-20 dB~~
~~- - - - - - - - - Qrxlevmin~~	~~-115 dBm~~
~~- - - - - - - Cell measurement~~	
~~- - - - - - - - Intra-frequency cell id~~	~~See test content~~
~~- - Intra-frequency measurement quantity~~	
~~- - - Filter coefficient~~	~~0~~
~~- - - Measurement quantity~~	~~CPICH RSCP~~
~~- - Intra-frequency reporting quantity for RACH Reporting~~	
~~- - - SFN-SFN observed time difference~~	~~No report~~
~~- - - Reporting quantity~~	~~No report~~
~~- - Maximum number of reported cells on RACH~~	
~~- - - Maximum number of reported cells~~	~~No report~~
~~- - Reporting information for state CELL_DCH~~	
~~- - - Intra-frequency reporting quantity~~	
~~- - - - Reporting quantities for active set cells~~	
~~- - - - - SFN-SFN observed time difference reporting indicator~~	~~No report~~
~~- - - - - 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~~	
~~- - - - - SFN-SFN observed time difference reporting indicator~~	~~No report~~
~~- - - - - 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 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~~	
~~- Parameters required for each event~~	
~~- Intra-frequency event identity~~	~~1a~~
~~- Triggering condition 1~~	~~Not Present~~
~~- Triggering condition 2~~	~~Active set cells and monitored set cells~~
~~- Reporting Range~~	~~5dB~~
~~- Cells forbidden to affect Reporting range~~	~~Not Present~~
~~- W~~	~~1.0~~
~~- Hysteresis~~	~~0.0~~
~~- Threshold used frequency~~	~~Not Present~~
~~- Reporting deactivation threshold~~	~~1~~
~~- Replacement activation threshold~~	~~Not Present~~
~~- Time to trigger~~	~~640~~
~~- Amount of reporting~~	~~Infinity~~
~~- Reporting interval~~	~~0~~
~~- Reporting cell status~~	
~~- CHOICE reported cell~~	~~Report cell within active set and/or monitored set cells on 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~~
~~- UE internal measurement system information~~	~~Not Present~~

~~Contents of System Information Block type 12 in connected mode (FDD)~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block types 13, 14~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block type 15~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block type 16~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block type 17~~

~~Not included in "Minimum" configuration.~~

~~Contents of System Information Block type 18~~

~~Not included in "Minimum" configuration.~~

~~Default settings for cell No.1 (FDD):~~

~~**Information Element**~~	~~**Value/remark**~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~100~~

~~Cell No.2~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.2 are identical to those of cell No.1 with the following exceptions:~~

~~**Information Element**~~	~~**Value/remark**~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0010B~~
~~URA identity~~	~~0000 0000 0000 0001B~~

~~Default settings for cell No.2 (FDD):~~

~~**Information Element**~~	~~**Value/remark**~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~150~~

~~Cell No.3~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.3 are identical to those of cell No.1 with the following exceptions:~~

~~**Information Element**~~	~~**Value/remark**~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0011B~~
~~URA identity~~	~~0000 0000 0000 0010B~~

~~Default settings for cell No.3 (FDD):~~

~~**Information Element**~~	~~**Value/remark**~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~200~~

~~Cell No.4~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.4 are identical to those of cell No.1 with the following exceptions:~~

~~**Information Element**~~	~~**Value/remark**~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0100B~~
~~URA identity~~	~~0000 0000 0000 0010B~~

~~Default settings for cell No.4 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~250~~

~~Cell No.5~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.5 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0101B~~
~~URA identity~~	~~0000 0000 0000 0011B~~

~~Default settings for cell No.5 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~300~~

~~Cell No.6~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.6 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0110B~~
~~URA identity~~	~~0000 0000 0000 0011B~~

~~Default settings for cell No.6 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~350~~

~~Cell No.7~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.7 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0111B~~
~~URA identity~~	~~0000 0000 0000 0100B~~

~~Default settings for cell No.7 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~400~~

~~Cell No.8~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.8 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 1000B~~
~~URA identity~~	~~0000 0000 0000 0100B~~

~~Default settings for cell No.8 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~450~~

~~The mapping of SIB's on segments and SYSTEM INFORMATION messages shall be inserted here, but is currently FFS.~~

~~Specific message content for "Maximum" configuration~~

~~The maximum set has:~~

- ~~"maximum" number of system information blocks~~
- ~~one "unknown future" blocks~~
- ~~scheduling blocks~~
- ~~combined FACH and PCH channels~~
- ~~SIB 3 is as in "minimum" set, but SIB4 is included with information as follows. Cell 1 has assigned values and Cell 2 default values, so that Cell2 shall be selected.~~

~~Contents of Master Information Block PLMN type is the case of GSM-MAP~~

~~Information Element~~	~~Value/remark~~
~~- MIB value tag~~	~~1~~
~~- Supported PLMN types~~	
~~- - PLMN type~~	~~GSM-MAP~~
~~- - - PLMN identity~~	
~~- - - - MCC digit~~	~~Set to the same Mobile Country Codes stored in the test USIM card.~~
~~- - - - MNC digit~~	~~Set to the same Mobile Network Codesstored in the test USIM card.~~
~~- ANSI-41 Core Network information~~	~~Not Present~~
~~- References to other system information blocks and scheduling blocks~~	
~~- - References to other system information blocks~~	
~~- - - Scheduling information~~	
~~- - - - CHOICE Value tag~~	
~~- - - - - Cell Value tag~~	~~1~~
~~- - - - Scheduling~~	
~~- - - - - SEG_COUNT~~	~~2~~
~~- - - - - SIB_REP~~	~~16~~
~~- - - - - SIB_POS~~	~~2~~
~~- - - - - SIB_POS offset info~~	
~~- - - - - - SIB_OFF~~	~~2~~
~~- - - SIB type~~	~~Scheduling Block 1~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~PLMN Value tag~~
~~- - - - PLMN Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~2~~
~~- - - SIB_REP~~	~~128~~
~~- - - SIB_POS~~	~~10~~
~~- - - SIB_POS offset info~~	
~~- - - - SIB_OFF~~	~~2~~
~~- - SIB and SB type~~	~~System Information Type 1~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~1~~
~~- - - SIB_REP~~	~~128~~
~~- - - SIB_POS~~	~~14~~
~~- - - SIB_POS offset info~~	~~Not Present – use default~~
~~- - SIB and SB type~~	~~System Information Type 2~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~1~~
~~- - - SIB_REP~~	~~64~~
~~- - - SIB_POS~~	~~6~~
~~- - - SIB_POS offset info~~	~~Not Present – use default~~
~~- - SIB and SB type~~	~~System Information Type 3~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~1~~
~~- - - SIB_REP~~	~~64~~
~~- - - SIB_POS~~	~~38~~
~~- - - SIB_POS offset info~~	~~Not Present – use default~~
~~- - SIB and SB type~~	~~System Information Type 4~~

~~Contents of Scheduling Block 1 (FDD)~~

~~Information Element~~	~~Value/remark~~
~~- References to other system information blocks~~	
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~3~~
~~- - - SIB_REP~~	~~128~~
~~- - - SIB_POS~~	~~26~~
~~- - - SIB_POS offset info~~	
~~- - - - SIB_OFF~~	~~2~~
~~- - - - SIB_OFF~~	~~2~~
~~- - SIB and SB type~~	~~System Information Type 5~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~3~~
~~- - - SIB_REP~~	~~128~~
~~- - - SIB_POS~~	~~42~~
~~- - - SIB_POS offset info~~	
~~- - - - SIB_OFF~~	~~2~~
~~- - - - SIB_OFF~~	~~2~~
~~- - SIB and SB type~~	~~System Information Type 6~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~1~~
~~- - - SIB_REP~~	~~128~~
~~- - - SIB_POS~~	~~22~~
~~- - - SIB_POS offset info~~	~~Not Present – use default~~
~~- - SIB and SB type~~	~~System Information Type 7~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~2~~
~~- - - SIB_REP~~	~~128~~
~~- - - SIB_POS~~	~~58~~
~~- - - SIB_POS offset info~~	
~~- - - - SIB_OFF~~	~~2~~
~~- - SIB and SB type~~	~~System Information Type 11~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~2~~
~~- - - SIB_REP~~	~~128~~
~~- - - SIB_POS~~	~~106~~
~~- - - SIB_POS offset info~~	
~~- - - - SIB_OFF~~	~~2~~
~~- - SIB and SB type~~	~~System Information Type 12~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~Cell Value tag~~
~~- - - Cell Value tag~~	~~1~~
~~- - - SEG_COUNT~~	~~TBD~~
~~- - - SIB_REP~~	~~TBD~~
~~- - - SIB_POS~~	~~TBD~~
~~- - - SIB_POS offset info~~	
~~- - - - SIB_OFF~~	~~TBD~~
~~- - SIB and SB type~~	~~System Information Type 15~~
~~- - Scheduling information~~	
~~- - - CHOICE Value tag~~	~~PLMN Value tag~~

~~- PLMN Value tag~~	~~1~~
~~- SEG_COUNT~~	~~6~~
~~- SIB_REP~~	~~128~~
~~- SIB_POS~~	~~74~~
~~- SIB_POS offset info~~	
~~- SIB_OFF~~	~~2~~
~~- SIB_OFF~~	~~2~~
~~- SIB_OFF~~	~~8~~
~~- SIB_OFF~~	~~4~~
~~- SIB_OFF~~	~~2~~
~~- SIB and SB type~~	~~System Information Type 16~~

~~Contents of System Information Block type 1 (supported PLMN type is GSM-MAP)~~

~~**Information Element**~~	~~**Value/remark**~~
~~- CN common GSM-MAP NAS system information~~	
~~- - GSM-MAP NAS system information~~	~~Contains the PLMN Identity and Location Area Code~~
~~- - MCC digit~~	~~Set to the same Mobile Country Code stored in test USIM card.~~
~~- - MNC digit~~	~~Set to the same Mobile Network Code stored in test USIM card.~~
~~- - Location area code~~	~~0001H~~
~~- CN domain system information~~	
~~- - CN domain identity~~	~~PS~~
~~- - CHOICE CN Type~~	~~GSM-MAP~~
~~- - CN domain specific NAS system information~~	
~~- - GSM-MAP NAS system information~~	~~T.B.D~~
~~- - CN domain specific DRX cycle length coefficient~~	~~7~~
~~- - CN domain identity~~	~~CS~~
~~- - CHOICE CN Type~~	~~GSM-MAP~~
~~- - CN domain specific NAS system information~~	
~~- - - GSM-MAP NAS system information~~	~~T.B.D~~
~~- - CN domain specific DRX cycle length coefficient~~	~~7~~
~~- UE Timers and constants in idle mode~~	
~~-T300~~	~~400 milliseconds~~
~~-N300~~	~~7~~
~~-T312~~	~~10 seconds~~
~~- N312~~	~~200~~
~~- UE Timers and constants in connected mode~~	
~~- T301~~	~~2000 milliseconds~~
~~- N301~~	~~2~~
~~- T302~~	~~4000 milliseconds~~
~~- N302~~	~~3~~
~~- T304~~	~~1000 milliseconds~~
~~- N304~~	~~3~~
~~- T305~~	~~60 minutes~~
~~- T307~~	~~50 seconds~~
~~- T308~~	~~320 milliseconds~~
~~- T309~~	~~8 seconds~~
~~- T310~~	~~320 milliseconds~~
~~- N310~~	~~5~~
~~- T311~~	~~500 milliseconds~~
~~- T312~~	~~5 seconds~~
~~- N312~~	~~200~~
~~- T313~~	~~10 seconds~~
~~- N313~~	~~20~~
~~- T314~~	~~20 seconds~~
~~- T315~~	~~30 seconds~~
~~- N315~~	~~200~~
~~- T316~~	~~50 seconds~~
~~- T317~~	~~1800 seconds~~

~~Contents of System Information Block type 2~~

~~**Information Element**~~	~~**Value/remark**~~
~~- URA identity list~~	~~*Only 1 URA identity broadcasted*~~
~~- - URA identity~~	~~0000 0000 0000 0001B~~

~~Contents of System Information Block type 3 (FDD)~~

~~Information Element~~	~~Value/remark~~
~~- SIB4 indicator~~	~~TRUE~~
~~- Cell identity~~	~~0000 0000 0000 0000 0000 0000 0001B~~
~~- Cell selection and re-selection info~~	
~~- Mapping info~~	
~~- Mapping List~~	
~~- RAT~~	~~UTRA FDD~~
~~- Mapping Function Parameter List~~	~~1~~
~~- Function type~~	~~Linear~~
~~- Map_parameter_1~~	~~1~~
~~- Map_parameter_2~~	~~1~~
~~- Upper_limit~~	~~1~~
~~- Cell selection_and_reselection_quality_-measure~~	~~CPICH Ec/N0~~
~~- CHOICE mode~~	~~FDD~~
~~- Sintrasearch~~	~~16 dB~~
~~- Sintersearch~~	~~16 dB~~
~~- SsearchHCS~~	~~10 dB~~
~~- RAT List~~	~~For conformance testing in Japan, this IE is omitted. For conformance testing in European countries, this IE is present with the following values.~~
~~- RAT identifier~~	~~GSM~~
~~- Ssearch,RAT~~	~~-105 dB~~
~~- SHCS,RAT~~	~~Not Present~~
~~- S~~$_{limit,ShearchRAT}$	~~Not Present~~
~~- Qhyst1~~$_{s}$	~~0 dB~~
~~- Qhyst2s~~	~~0 dB~~
~~- Treselections~~	~~0 seconds~~
~~- HCS Serving cell information~~	
~~- HCS_PRIO~~	~~0~~
~~- QHCS~~	~~0~~
~~- TCR~~$_{MAX}$	~~Not used~~
~~- NCR~~	~~Not Present~~
~~- TCMAX~~$_{Hyst}$	~~Not Present~~
~~- Maximum allowed UL TX power~~	~~33dBm~~
~~- CHOICE mode~~	~~FDD~~
~~- Qqualmin~~	~~-20 dB~~
~~- Qrxlevmin~~	~~-115 dBm~~
~~- Cell Access Restriction~~	
~~- Cell barred~~	~~Not barred~~
~~- Cell Reserved for operator use~~	~~Not reserved~~
~~- Cell Reserved for SoLSA exclusive use~~	~~Not reserved~~
~~- Access Class Barred0~~	~~Not barred~~
~~- Access Class Barred1~~	~~Not barred~~
~~- Access Class Barred2~~	~~Not barred~~
~~- Access Class Barred3~~	~~Not barred~~
~~- Access Class Barred4~~	~~Not barred~~
~~- Access Class Barred5~~	~~Not barred~~
~~- Access Class Barred6~~	~~Not barred~~
~~- Access Class Barred7~~	~~Not barred~~
~~- Access Class Barred8~~	~~Not barred~~
~~- Access Class Barred9~~	~~Not barred~~
~~- Access Class Barred10~~	~~Not barred~~
~~- Access Class Barred11~~	~~Not barred~~
~~- Access Class Barred12~~	~~Not barred~~
~~- Access Class Barred13~~	~~Not barred~~
~~- Access Class Barred14~~	~~Not barred~~
~~- Access Class Barred15~~	~~Not barred~~

~~Contents of System Information Block type 4 in connected mode (FDD)~~

~~**Information Element**~~	~~**Value/remark**~~
~~- Cell identity~~	~~0000 0000 0000 0000 0000 0000 0001B~~
~~- Cell selection and re-selection info~~	
~~- Mapping Info~~	
~~- Mapping List~~	
~~- RAT~~	~~UTRA FDD~~
~~- Mapping Function Parameter List~~	
~~- Function type~~	~~Linear~~
~~- Map_parameter_1~~	~~1~~
~~- Map_parameter_2~~	~~1~~
~~- Upper_limit~~	~~1~~
~~- Cell_selection_and_reselection_quality_-measure~~	~~CPICH RSCP~~
~~- CHOICE mode~~	~~FDD~~
~~- Sintrasearch~~	~~16 dB~~
~~- Sintersearch~~	~~16 dB~~
~~- SsearchHCS~~	~~10 dB~~
~~- RAT List~~	~~For conformance testing in Japan, this IE is omitted. For conformance testing in European countries, this IE is present with the following values.~~
~~- RAT identifier~~	~~GSM~~
~~- Ssearch,RAT~~	~~-105 dB~~
~~- SHCS,RAT~~	~~Not Present~~
~~- $S_{limit,ShearchRAT}$~~	~~Not Present~~
~~- $Qhyst1_s$~~	~~0 dB~~
~~- $Qhyst2_s$~~	~~0 dB~~
~~- Treselections~~	~~0 seconds~~
~~- HCS Serving cell information~~	
~~- HCS_PRIO~~	~~0~~
~~- QHCS~~	~~0~~
~~- TCR_{MAX}~~	~~Not used~~
~~- NCR~~	~~Not Present~~
~~- $TCMAXH_{yst}$~~	~~Not Present~~
~~- Maximum allowed UL TX power~~	~~33dBm~~
~~- CHOICE mode~~	~~FDD~~
~~- Qqualmin~~	~~-20 dB~~
~~- Qrxlevmin~~	~~-115 dBm~~
~~- Cell Access Restriction~~	
~~- Cell barred~~	~~Not barred~~
~~- Access Class Barred~~	~~Not barred~~
~~- Cell Reserved for operator use~~	~~Not reserved~~
~~- Cell Reserved for SoLSA exclusive use~~	~~Not reserved~~
~~- Access Class Barred0~~	~~Not barred~~
~~- Access Class Barred1~~	~~Not barred~~
~~- Access Class Barred2~~	~~Not barred~~
~~- Access Class Barred3~~	~~Not barred~~
~~- Access Class Barred4~~	~~Not barred~~
~~- Access Class Barred5~~	~~Not barred~~
~~- Access Class Barred6~~	~~Not barred~~
~~- Access Class Barred7~~	~~Not barred~~
~~- Access Class Barred8~~	~~Not barred~~
~~- Access Class Barred9~~	~~Not barred~~
~~- Access Class Barred10~~	~~Not barred~~
~~- Access Class Barred11~~	~~Not barred~~
~~- Access Class Barred12~~	~~Not barred~~
~~- Access Class Barred13~~	~~Not barred~~
~~- Access Class Barred14~~	~~Not barred~~
~~- Access Class Barred15~~	~~Not barred~~

~~Contents of System Information Block type 5 (FDD)~~

~~**Information Element**~~	~~**Value/remark**~~
~~- SIB6 indicator~~	~~TRUE~~
~~- PICH Power offset~~	~~-5 dB~~
~~- CHOICE Mode~~	~~FDD~~
~~- - AICH Power offset~~	~~0dB~~
~~- Primary CCPCH info~~	
~~- - - TX Diversity indicator~~	~~FALSE~~
~~- PRACH system information list~~	
~~- PRACH system information~~	
~~- - PRACH info~~	
~~- - - CHOICE mode~~	~~FDD~~
~~- - - - Available Signature~~	~~'0000 0000 1111 1111'B~~
~~- - - - Available SF~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Preamble scrambling code number~~	~~0~~
~~- - - - Puncturing Limit~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - 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~~	~~(This IE is repeated for TFI number)~~
~~- - - - RLC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - - Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - - CHOICE Mode~~	~~FDD~~
~~- - - - CHOICE Logical Channel List~~	~~ALL~~
~~- - - Semi-static Transport Format information~~	
~~- - - - Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - RACH TFCS~~	~~(This IE is repeated for TFC number.)~~
~~- - - Normal~~	
~~- - - - TFCI Field 1 information~~	
~~- - - - - CHOICE TFCS representation~~	~~Addition~~
~~- - - - - - TFCS addition information~~	
~~- - - - - - - CHOICE CTFC Size~~	~~Number of bits used must be enough to cover all combinations of CTFC from clause 6.10.~~
~~- - - - - - - - CTFC information~~	~~Refer to clause 6.10 Parameter Set~~
~~- - - - - - - - Power offset information~~	
~~- - - - - - - - - CHOICE Gain Factors~~	~~Signalled Gain Factor~~
~~- - - - - - - - - - Gain factor ßc~~	~~0~~
~~- - - - - - - - - - Gain factor ßd~~	~~0~~
~~- - - - - - - - - - Reference TFC ID~~	~~Not Present~~
~~- - - - - - - - - Power offset Pp-m~~	~~0dB~~
~~- - PRACH partitioning~~	
~~- - - Access Service Class~~	
~~- - - - ASC Setting~~	
~~- - - - - CHOICE mode~~	~~FDD~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#0)~~
~~- - - - - - Available signature End Index~~	~~7 (ASC#0)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - - - 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~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#2)~~
~~- - - - - - Available signature End Index~~	~~7 (ASC#2)~~
~~- - - - - - Assigned Sub-channel Number~~	~~'1111'B~~
~~- - - - - - Available signature Start Index~~	~~0 (ASC#3)~~

~~------ Available signature End Index~~	~~7 (ASC#3)~~
~~------ Assigned Sub-channel Number~~	~~'1111'B~~
~~------ Available signature Start Index~~	~~0 (ASC#4)~~
~~------ Available signature End Index~~	~~7 (ASC#4)~~
~~------ Assigned Sub-channel Number~~	~~'1111'B~~
~~------ Available signature Start Index~~	~~0 (ASC#5)~~
~~------ Available signature End Index~~	~~7 (ASC#5)~~
~~------ Assigned Sub-channel Number~~	~~'1111'B~~
~~------ Available signature Start Index~~	~~0 (ASC#6)~~
~~------ Available signature End Index~~	~~7 (ASC#6)~~
~~------ Assigned Sub-channel Number~~	~~'1111'B~~
~~------ Available signature Start Index~~	~~0 (ASC#7)~~
~~------ Available signature End Index~~	~~7 (ASC#7)~~
~~------ Assigned Sub-channel Number~~	~~'1111'B~~
~~-- 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)~~
~~-- Primary CPICH DL TX power~~	~~Reference to clause 6.10 Parameter Set~~
~~-- Constant value~~	~~Reference to clause 6.10 Parameter Set~~
~~-- PRACH power offset~~	
~~--- Power Ramp Step~~	~~3dB~~
~~--- Preamble Retrans Max~~	~~2~~
~~-- RACH transmission parameters~~	
~~--- Mmax~~	~~2~~
~~--- NB01min~~	~~3 slot~~
~~--- NB01max~~	~~10 slot~~
~~-- AICH info~~	
~~--- Channelisation code~~	~~SF-1(SF is reference to clause 6.10 Parameter Set)~~
~~--- STTD indicator~~	~~FALSE~~
~~--- AICH transmission timing~~	~~0~~
~~- Secondary CCPCH system info~~	
~~-- Secondary CCPCH info~~	
~~--- Primary CPICH usage for channel estimation~~	~~Primary CPICH may be used~~
~~--- Secondary CPICH info~~	~~Not Present~~
~~--- Secondary scrambling code~~	~~Not Present~~
~~--- STTD indicator~~	~~FALSE~~
~~--- Spreading factor~~	~~Reference to clause 6.10 Parameter Set~~
~~--- Code number~~	~~SF-1(SF is reference to clause 6.10 Parameter Set)~~
~~--- Pilot symbol existence~~	~~FALSE~~
~~--- TFCI existence~~	~~TRUE~~
~~--- Fixed or Flexible position~~	~~Flexible~~
~~--- Timing offset~~	~~0~~
~~-- TFCS~~	~~(This IE is repeated for TFC number for PCH and FACH.)~~
~~--- Normal~~	
~~---- TFCI Field 1 information~~	
~~----- CHOICE TFCS representation~~	~~Addition~~
~~------ TFCS addition information~~	
~~------- CHOICE CTFC Size~~	~~Number of bits used must be enough to cover all combinations of CTFC from clause 6.10.~~
~~-------- CTFC information~~	~~Refer to clause 6.10 Parameter Set~~
~~-------- Power offset information~~	~~Not Present~~

~~- FACH/PCH information~~	
~~- - Transport Channel Identity~~	~~12 (for PCH)~~
~~- - TFS~~	~~(PCH)~~
~~- - CHOICE Transport channel type~~	~~Common transport channels~~
~~- - - Dynamic Transport format information~~	~~(This IE is repeated for TFI number.)~~
~~- - - RLC Size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CHOICE Mode~~	~~FDD~~
~~- - - CHOICE Logical Channel List~~	~~ALL~~
~~- - - Semi-static Transport Format information~~	
~~- - - - Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - Transport Channel Identity~~	~~13 (for FACH)~~
~~- - TFS~~	~~(FACH)~~
~~- - CHOICE Transport channel type~~	~~Common transport channels~~
~~- - - Dynamic Transport format information~~	~~(This IE is repeated for TFI number.)~~
~~- - - RLC Size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CHOICE Mode~~	~~FDD~~
~~- - - CHOICE Logical Channel List~~	~~ALL~~
~~- - - Semi-static Transport Format information~~	
~~- - - - Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~- - - - CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- - CTCH indicator~~	~~FALSE~~
~~- - PICH info~~	
~~- - - Channelisation code~~	~~SF-1(SF is reference to clause 6.10 Parameter Set)~~
~~- - - Number of PI per frame~~	~~18~~
~~- - - STTD indicator~~	~~FALSE~~
~~- CBS DRX Level 1 information~~	~~Not Present~~

~~Contents of System Information Block type 6 in connected mode (FDD)~~

~~Information Element~~	~~Value/remark~~
~~- PICH power offset~~	~~-5 dB~~
~~- CHOICE Mode~~	~~FDD~~
~~-- AICH power offset~~	~~0 dB~~
~~-- CSICH Power offset~~	~~Not Present~~
~~- Primary CCPCH info~~	
~~--- TX Diversity indicator~~	~~FALSE~~
~~- PRACH system information list~~	
~~- PRACH system information~~	
~~-- PRACH info~~	
~~--- CHOICE mode~~	~~FDD~~
~~---- Available Signature~~	~~'0000 0000 1111 1111'B~~
~~---- Available SF~~	~~Reference to clause 6.10 Parameter Set~~
~~---- Preamble scrambling code number~~	~~0~~
~~---- Puncturing Limit~~	~~Reference to clause 6.10 Parameter Set~~
~~---- 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~~	~~(This IE is repeated for TFI number)~~
~~---- RLC size~~	~~Reference to clause 6.10 Parameter Set~~
~~---- Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~----- Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~----- CHOICE Mode~~	~~FDD~~
~~---- CHOICE Logical Channel List~~	~~ALL~~
~~--- Semi-static Transport Format information~~	
~~---- Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~---- Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~---- Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~---- Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~---- CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~-- RACH TFCS~~	~~(This IE is repeated for TFC number.)~~
~~--- Normal~~	
~~---- TFCI Field 1 information~~	
~~----- CHOICE TFCS representation~~	~~Addition~~
~~------ TFCS addition information~~	
~~------- CHOICE CTFC Size~~	~~Number of bits used must be enough to cover all combinations of CTFC from clause 6.10.~~
~~-------- CTFC information~~	~~Refer to clause 6.10 Parameter Set~~
~~-------- Power offset information~~	
~~--------- CHOICE Gain Factors~~	~~Signalled Gain Factor~~
~~---------- Gain factor ßc~~	~~0~~
~~---------- Gain factor ßd~~	~~0~~
~~---------- Reference TFC ID~~	~~Not Present~~
~~--------- Power offset Pp-m~~	~~0dB~~
~~-- PRACH partitioning~~	
~~--- Access Service Class~~	
~~---- ASC Setting~~	
~~----- CHOICE mode~~	~~FDD~~
~~------ Available signature Start Index~~	~~0 (ASC#0)~~
~~------ Available signature End Index~~	~~7 (ASC#0)~~
~~------ Assigned Sub-channel Number~~	~~'1111'B~~
~~---- 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~~
~~---- ASC Setting~~	
~~----- CHOICE mode~~	~~FDD~~
~~------ Available signature Start Index~~	~~0 (ASC#2)~~
~~------ Available signature End Index~~	~~7 (ASC#2)~~

~~- Assigned Sub-channel Number~~	~~‘1111’B~~
~~- 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~~
~~- ASC Setting~~	
~~- CHOICE mode~~	~~FDD~~
~~- Available signature Start Index~~	~~0 (ASC#4)~~
~~- Available signature End Index~~	~~7 (ASC#4)~~
~~- Assigned Sub-channel Number~~	~~‘1111’B~~
~~- 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~~
~~- ASC Setting~~	
~~- CHOICE mode~~	~~FDD~~
~~- Available signature Start Index~~	~~0 (ASC#6)~~
~~- Available signature End Index~~	~~7 (ASC#6)~~
~~- Assigned Sub-channel Number~~	~~‘1111’B~~
~~- 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~~
~~- 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~~	~~Not Present~~
~~- Primary CPICH DL TX power~~	~~Reference to clause 6.10 Parameter Set~~
~~- Constant value~~	~~Reference to clause 6.10 Parameter Set~~
~~- PRACH power offset~~	
~~- Power Ramp Step~~	~~3dB~~
~~- Preamble Retrans Max~~	~~2~~
~~- RACH transmission parameters~~	
~~- Mmax~~	~~2~~
~~- NB01min~~	~~3 slot~~
~~- NB01max~~	~~10 slot~~
~~- AICH info~~	
~~- Channelisation code~~	~~SF-1(SF is reference to clause 6.10 Parameter Set)~~
~~- STTD indicator~~	~~FALSE~~
~~- AICH transmission timing~~	~~0~~
~~- Secondary CCPCH system info~~	
~~- Secondary CCPCH info~~	
~~- Primary CPICH usage for channel estimation~~	~~Primary CPICH may be used~~
~~- Secondary CPICH info~~	~~Not Present~~
~~- Secondary scrambling code~~	~~Not Present~~
~~- STTD indicator~~	~~FALSE~~
~~- Spreading factor~~	~~Reference to clause 6.10 Parameter Set~~
~~- Code number~~	~~Reference to clause 6.10 Parameter Set~~
~~- Pilot symbol existence~~	~~FALSE~~
~~- TFCI existence~~	~~TRUE~~
~~- Fixed or Flexible position~~	~~Flexible~~
~~- Timing offset~~	~~0~~
~~- TFCS~~	~~(This IE is repeated for TFC number for PCH and FACH.)~~
~~- Normal~~	
~~- TFCI Field 1 information~~	
~~- CHOICE TFCS representation~~	~~Addition~~

~~- TFCS addition information~~	
~~- CHOICE CTFC Size~~	~~Number of bits used must be enough to cover all combinations of CTFC from clause 6.10.~~
~~- CTFC information~~	~~Refer to clause 6.10 Parameter Set~~
~~- Power offset information~~	~~Not Present~~
~~- FACH/PCH information~~	
~~- Transport Channel Identity~~	~~12 (for PCH)~~
~~- TFS~~	~~(PCH)~~
~~- CHOICE Transport channel type~~	~~Common transport channels~~
~~- Dynamic Transport format information~~	~~(This IE is repeated for TFI number.)~~
~~- RLC Size~~	~~Reference to clause 6.10 Parameter Set~~
~~- Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~- Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~- CHOICE Mode~~	~~FDD~~
~~- CHOICE Logical Channel List~~	~~ALL~~
~~- Semi-static Transport Format information~~	
~~- Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~- Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~- Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~- Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~- CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- Transport Channel Identity~~	~~13 (for FACH)~~
~~- TFS~~	~~(FACH)~~
~~- CHOICE Transport channel type~~	~~Common transport channels~~
~~- Dynamic Transport format information~~	~~(This IE is repeated for TFI number.)~~
~~- RLC Size~~	~~Reference to clause 6.10 Parameter Set~~
~~- Number of TB and TTI List~~	~~Reference to clause 6.10 Parameter Set~~
~~- Number of Transport blocks~~	~~Reference to clause 6.10 Parameter Set~~
~~- CHOICE Mode~~	~~FDD~~
~~- CHOICE Logical Channel List~~	~~ALL~~
~~- Semi-static Transport Format information~~	
~~- Transmission time interval~~	~~Reference to clause 6.10 Parameter Set~~
~~- Type of channel coding~~	~~Reference to clause 6.10 Parameter Set~~
~~- Coding Rate~~	~~Reference to clause 6.10 Parameter Set~~
~~- Rate matching attribute~~	~~Reference to clause 6.10 Parameter Set~~
~~- CRC size~~	~~Reference to clause 6.10 Parameter Set~~
~~- CTCH indicator~~	~~FALSE~~
~~- PICH info~~	
~~- Channelisation code~~	~~SF-1(SF is reference to clause 6.10 Parameter Set)~~
~~- Number of PI per frame~~	~~18~~
~~- STTD indicator~~	~~FALSE~~
~~- CBS DRX Level 1 information~~	~~Not Present~~

~~Contents of System Information Block type 7 (FDD)~~

~~**Information Element**~~	~~**Value/remark**~~
~~CHOICE Mode~~	~~FDD~~
~~- UL interference~~	~~-100dBm~~
~~- PRACHs listed in system information block type5~~	
~~- Dynamic persistence level~~	~~2~~
~~- PRACHs listed in system information block type6~~	
~~- Dynamic persistence level~~	~~2~~
~~- Expiration Time Factor~~	~~Not Present – use default value of 1~~

~~Contents of System Information Block type 8, 9 (only for FDD)~~

~~This information is used for static CPCH in the cell, so this is not present.~~

~~Contents of System Information Block type 10 (only for FDD)~~

~~This information is used for DRAC, so this is not present.~~

~~Contents of System Information Block type 11 (FDD)~~

~~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 RSCP~~
~~- - Intra-frequency measurement system information~~	
~~- - - Intra-frequency measurement identity~~	~~0~~
~~- - - Intra-frequency cell info list~~	
~~- - - - CHOICE intra-frequency cell removal~~	~~Remove no intra-frequency cells~~
~~- - - - New intra-frequency cells~~	
~~- - - - - Intra-frequency cell id~~	~~0~~
~~- - - - - Cell info~~	
~~- - - - - - Cell individual offset~~	~~0dB~~
~~- - - - - - Reference time difference to cell~~	~~Not Present~~
~~- - - - - - Read SFN indicator~~	~~FALSE~~
~~- - - - - - CHOICE mode~~	~~FDD~~
~~- - - - - - - Primary CPICH info~~	
~~- - - - - - - - Primary scrambling code~~	~~The current value plus 50(When the current cell is cell No.8 then minus 50)~~
~~- - - - - - - Primary CPICH TX power~~	~~Not Present~~
~~- - - - - - - TX Diversity indicator~~	~~FALSE~~
~~- - - - - - - Cell Selection and Re-selection info~~	
~~- - - - - - - - Qoffset1$_{s,n}$~~	~~0 dB~~
~~- - - - - - - - Qoffset2s,n~~	~~0 dB~~
~~- - - - - - - - Maximum allowed UL TX power~~	~~33 dBm~~
~~- - - - - - - - HCS neighbouring cell information~~	~~Not Present~~
~~- - - - - - - - CHOICE mode~~	~~FDD~~
~~- - - - - - - - - Qqualmin~~	~~-20 dB~~
~~- - - - - - - - - Qrxlevmin~~	~~-115 dBm~~
~~- - - - - - - Cell measurement~~	
~~- - - - - - - - Intra-frequency cell id~~	~~See test content~~
~~- - Intra-frequency measurement quantity~~	
~~- - - Filter coefficient~~	~~0~~
~~- - - Measurement quantity~~	~~CPICH RSCP~~
~~- - Intra-frequency reporting quantity for RACH Reporting~~	
~~- - - SFN-SFN observed time difference~~	~~No report~~
~~- - - Reporting quantity~~	~~No report~~
~~- - Maximum number of reported cells on RACH~~	
~~- - - Maximum number of reported cells~~	~~No report~~
~~- - Reporting information for state CELL_DCH~~	
~~- - - Intra-frequency reporting quantity~~	
~~- - - - Reporting quantities for active set cells~~	
~~- - - - - SFN-SFN observed time difference reporting indicator~~	~~No report~~
~~- - - - - 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~~	
~~- - - - - SFN-SFN observed time difference reporting indicator~~	~~No report~~
~~- - - - - 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 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~~	
~~- Parameters required for each event~~	
~~- Intra-frequency event identity~~	~~1a~~
~~- Triggering condition 1~~	~~Not Present~~
~~- Triggering condition 2~~	~~Active set cells and monitored set cells~~
~~- Reporting Range~~	~~5dB~~
~~- Cells forbidden to affect Reporting range~~	~~Not Present~~
~~- W~~	~~1.0~~
~~- Hysteresis~~	~~0.0~~
~~- Threshold used frequency~~	~~Not Present~~
~~- Reporting deactivation threshold~~	~~1~~
~~- Replacement activation threshold~~	~~Not Present~~
~~- Time to trigger~~	~~640~~
~~- Amount of reporting~~	~~Infinity~~
~~- Reporting interval~~	~~0~~
~~- Reporting cell status~~	
~~- CHOICE reported cell~~	~~Report cell within active set and/or monitored set cells on 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~~
~~- UE internal measurement system information~~	~~Not Present~~

~~Contents of System Information Block type 12 in connected mode (FDD)~~

~~**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~~	~~0~~
~~- - Intra-frequency cell info list~~	
~~- - - CHOICE intra-frequency cell removal~~	~~Remove no intra-frequency cells~~
~~- - - New intra-frequency cells~~	
~~- - - - - Intra-frequency cell id~~	~~0~~
~~- - - - - Cell info~~	
~~- - - - - - Cell individual offset~~	~~0dB~~
~~- - - - - - Reference time difference to cell~~	~~Not Present~~
~~- - - - - - Read SFN indicator~~	~~FALSE~~
~~- - - - - - CHOICE mode~~	~~FDD~~
~~- - - - - - - Primary CPICH info~~	
~~- - - - - - - - Primary scrambling code~~	~~The current value plus 50(When the current cell is cell No.8 then minus 50)~~
~~- - - - - - - Primary CPICH TX power~~	~~Not Present~~
~~- - - - - - - Read SFN indicator~~	~~TRUE~~
~~- - - - - - - TX Diversity indicator~~	~~FALSE~~
~~- - - - - - - Cell Selection and Re-selection info~~	
~~- - - - - - - - Qoffset1$_{s,n}$~~	~~0 dB~~
~~- - - - - - - - Qoffset2$_{s,n}$~~	~~0 dB~~
~~- - - - - - - Maximum allowed UL TX power~~	~~33dBm~~
~~- - - - - - - - HCS neighbouring cell information~~	~~Not Present~~
~~- - - - - - - CHOICE mode~~	~~FDD~~
~~- - - - - - - - - Qqualmin~~	~~-20 dB~~
~~- - - - - - - - - Qrxlevmin~~	~~-115 dBm~~
~~- - - - - - - Cell measurement~~	
~~- - - - - - - - Intra-frequency cell id~~	~~See test contact~~
~~- - Intra-frequency measurement quantity~~	
~~- - - Filter coefficient~~	~~0~~
~~- - - Measurement quantity~~	~~CPICH RSCP~~
~~- - Intra-frequency reporting quantity for RACH Reporting~~	
~~- -SFN-SFN observed time difference~~	~~No report~~
~~- - - Reporting quantity~~	~~No report~~
~~- - Maximum number of reported cells on RACH~~	
~~- - - Maximum number of reported cells~~	~~No report~~
~~- - Reporting information for state CELL_DCH~~	
~~- - - Intra-frequency reporting quantity~~	
~~- - - - Reporting quantities for active set cells~~	
~~- - - - - SFN-SFN observed time difference reporting indicator~~	~~No report~~
~~- - - - - 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~~	
~~- - - - - SFN-SFN observed time difference reporting indicator~~	~~No report~~
~~- - - - - 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~~	
~~- - - Parameters required for each event~~	
~~- - - - Intra-frequency event identity~~	~~1a~~
~~- - - - Triggering condition 1~~	~~Not Present~~
~~- - - - Triggering condition 2~~	~~Active set cells and monitored set cells~~
~~- - - - Reporting Range~~	~~5dB~~
~~- - - - Cells forbidden to affect reporting range~~	~~Not Present~~
~~- - - - W~~	~~1.0~~
~~- - - - Hysteresis~~	~~0.0~~
~~- - - - Threshold used frequency~~	~~Not Present~~
~~- - - - Reporting deactivation threshold~~	~~1~~
~~- - - - Replacement activation threshold~~	~~Not Present~~
~~- - - - Time to trigger~~	~~0~~
~~- - - - Amount of reporting~~	~~Infinity~~
~~- - - - Reporting interval~~	~~0~~
~~- - - - Reporting cell status~~	
~~- - - - - CHOICE reported cell~~	~~Report cell Within active set and/or monitored set cells on 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~~
~~- UE internal measurement system information~~	~~Not Present~~

~~Contents of System Information Block type 15~~

~~Information Element~~	**~~Value/remark~~**
~~- Reference Position~~	
~~- - Latitude sign~~	~~[FFS]~~
~~- - Degrees Of Latitude~~	~~[FFS]~~
~~- - Degrees Of Longitude~~	~~[FFS]~~
~~- - Altitude Direction~~	~~[FFS]~~
~~- - Altitude~~	~~[FFS]~~
~~- - Uncertainty semi-major~~	~~[FFS]~~
~~- - Uncertainty semi-minor~~	~~[FFS]~~
~~- - Orientation of major axis~~	~~[FFS]~~
~~- - Uncertainty Altitude~~	~~[FFS]~~
~~- - Confidence~~	~~[FFS]~~
~~- GPS Reference Time~~	
~~- GPS Week~~	~~[FFS]~~
~~- GPS TOW msec~~	~~[FFS]~~

~~Contents of System Information Block type 16~~

~~Information Element~~	**~~Value/remark~~**
~~- Re-establishment timer~~	~~[FFS]~~
~~- Predefined RB configuration~~	~~[FFS]~~
~~- Predefined TrCh configuration~~	~~[FFS]~~
~~- Predefined Phy configuration~~	~~[FFS]~~

~~Contents of System Information Block type 18~~

~~Information Element~~	~~Value/remark~~
~~- Idle mode PLMN identities~~	
~~- PLMNs of intra-frequency cells list~~	
~~- PLMN identity~~	~~Set to the same value as indicated in MIB~~
~~- PLMNs of inter-frequency cells list~~	~~Not present~~
~~- PLMNs of inter-RAT cells list~~	~~Not present~~
~~- Connected mode PLMN identities~~	~~Not present~~

~~Default settings for cell No.1 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~100~~

~~Cell No.2~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.2 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0010B~~
~~URA identity~~	~~0000 0000 0000 0001B~~

~~Default settings for cell No.2 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~150~~

~~Cell No.3~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.3 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0011B~~
~~URA identity~~	~~0000 0000 0000 0010B~~

~~Default settings for cell No.3 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~200~~

~~Cell No.4~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.4 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0100B~~
~~URA identity~~	~~0000 0000 0000 0010B~~

~~Default settings for cell No.4 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~250~~

~~Cell No.5~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.5 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0101B~~
~~URA identity~~	~~0000 0000 0000 0011B~~

~~Default settings for cell No.5 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~300~~

~~Cell No.6~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.6 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0110B~~
~~URA identity~~	~~0000 0000 0000 0011B~~

~~Default settings for cell No.6 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~350~~

~~Cell No.7~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.7 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 0111B~~
~~URA identity~~	~~0000 0000 0000 0100B~~

~~Default settings for cell No.7 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~400~~

~~Cell No.8~~

~~The contents of SYSTEM INFORMATION BLOCK TYPE 1 to 16 messages for cell No.8 are identical to those of cell No.1 with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell identity~~	~~0000 0000 0000 0000 0000 0000 1000B~~
~~URA identity~~	~~0000 0000 0000 0100B~~

~~Default settings for cell No.8 (FDD):~~

~~Information Element~~	~~Value/remark~~
~~Downlink input level~~	~~Reference to clause 6.10 Parameter Set~~
~~Uplink output power~~	~~Minimum supported by the UE's power class.~~
~~PCCPCH/PCPICH carrier number~~	~~Reference to clause 6.10 Parameter Set~~
~~Cell Channel Description~~	
~~- Primary CPICH info~~	
~~- Primary scrambling code~~	~~450~~

~~The mapping of system information blocks on segments and SYSTEM INFORMATION messages are FFS.~~

8.1.10.1.6 Test requirement

After step b~~3~~ the UE shall be in Connected state U10 in Cell 1.
After step e~~6~~ the UE shall be in Connected state U10 in Cell 2.

3GPP TSG- T1 Meeting #16 **T1-020523**
Yokohama, Japan, August 2nd

3GPP TSG- T1 SIG Meeting #24 **T1S-020526**
Yokohama, Japan, July 29th-31st, 2002

CR-Form-v6.1

CHANGE REQUEST

⌘	**TS 34.123-1**	**CR**	**271**	⌘ **rev**	**-**	⌘ Current version:	**5.0.1**	⌘
	Spec Title:	User Equipment (UE) conformance specification; Part 1: Protocol conformance specification						⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 REL-5; Corrections to clause 8.3.7.1- 8.3.7.4 for Package 2 test cases (Inter System HO)	
Source:	⌘	Ericsson	
Work item code:	⌘	TEI	***Date:*** ⌘ 31/07/02
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)*

Reason for change: ⌘

1. The test cases are not aligned with the core specification (25.331)
2. The test cases do not sufficiently cover the signalling options included in the core specifications concerning band indicator, inter RAT message and simultaneously active PS domain RAB
3. The initial conditions are unclear

Summary of change: ⌘ The following changes are proposed in this CR:

Clause 8.3.7.1

- The conformance requirement was out of date, incorrect and included FFS. The proposal is to replace it with an extract from the latest version of 25.331 (v 3.11.0)
- Clarification is added to the initial conditions concerning the established RABs (one CS domain RAB is established)
- Clarification is added to the test procedure that the DCS 1800 and PCS 1900 band should be covered, if support is indicated in the PIXIT
- Clarification is added to the test procedure that inter RAT handover normally involved the configuration of compressed mode and measurements
- In the HANDOVER FROM UTRAN COMMAND message, a CS RAB is established and hence IE “RAB info should be set to indicate the CS domain RAB to be handed over

- In the HANDOVER FROM UTRAN COMMAND message, a statement is included that the IE “Frequency band” is set to GSM/ PCS 1900 in case that frequency is used and set to GSM/ DCS 1800 otherwise

Clause 8.3.7.2
Same as above. Following additional changes:

- In the HANDOVER FROM UTRAN COMMAND message, CHOICE GSM message is changed from “Single GSM message” to “GSM message list”, to also verify this signalling option. The list contains on GSM message, the same as previously included in this “Single GSM message” case

Clause 8.3.7.3
Same as above. Following additional changes:

- The initial condition is changed to not only include one CS domain RAB but also a PS domain RAB since this is a valid handover scenario that is currently not covered. Since the handover only concerns the CS domain RAB (the PS domain RAB is to be re- established after handover), this change has limited impact

PICS question added to ask if PS+CS is supported.

Clause 8.3.7.4
Same as above, except that in this case the IE “RAB Info” is correctly specified to be “not present”. Clarification is added to the initial condition that no RABs are established.

Consequences if not approved: ⌘

1. The misalignment between the test cases and the core specification (25.331) remains
2. Several relevant signalling options included in the core specifications will not be covered in the test specification
3. The initial conditions remain unclear

Clauses affected: ⌘ 8.3.7.1, 8.3.7.2, 8.3.7.3. 8.3.7.4

Other specs affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ O&M Specifications

Other comments: ⌘ Affects R’99, 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/3G_Specs/CRs.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.

8.3.7 Inter-system hard handover from UTRAN to GSM

Clauses 8.3.7 contains test procedures to be used for executing Inter-system Handover from UTRAN to GSM tests. Table 8.3.7-1 contains a summary of the different combinations of parameters being tested, together with a reference to the appropriate generic test procedure. If a test uses a parameter which the UE under test does not support, the test shall be skipped. Test cases in this clause are applicable only to the UE supporting both UTRAN and GSM. The test TEST USIM shall support service 27 to carry out these test cases.

Table 8.3.7-1

From	To	State of call	Ref. clause	Exec counter	Remark
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM AMR	U10	8.3.7.1	1	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM EFR	U10	8.3.7.1	2	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.1	3	call active state
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM HR	U10	8.3.7.1	4	call active state
UTRAN (Streaming/unknown/ uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.2	1	Same data rate
UTRAN (Streaming/unknown/ uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 28.8 kbps CS data	U10	8.3.7.2	2	Same data rate
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBS)	GSM 57.6 kbps CS data	U10	8.3.7.2	3	Same data rate
UTRAN (Streaming/unknown/ uplink:28.8 DL:28.8 kbps/CS RAB + interactive/ background UL: 32kbps, DL: 32 kbps* + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.3	1	Data rate down grading
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + interactive/ background UL: 32kbps, DL: 32 kbps* + uplink:3.4 DL:3.4 kbps SRBS)	GSM 14.4 kbps CS data	U10	8.3.7.3	2	Data rate down grading
UTRAN (Streaming/unknown/ uplink:57.6 DL:57.6 kbps/CS RAB + interactive/ background UL: 32kbps, DL: 32 kbps* + uplink:3.4 DL:3.4 kbps SRBS)	GSM 28.8 kbps CS data	U10	8.3.7.3	3	Data rate down grading
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U1	8.3.7.4	1	During call establishment
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.5	1	failure case

UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.6	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.7	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.8	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.9	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.10	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.11	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U10	8.3.7.12	1	failure case
UTRAN AMR (conversational/speech/ uplink:12.2 DL:12.2 kbps/CS RAB + uplink:3.4 DL3.4 kbps SRBS)	GSM FR	U1	8.3.7.13	1	call under establishment

NB *) The PS part is only applicable for UE supporting CS+PS service.

8.3.7.1 Inter system handover from UTRAN/To GSM/Speech/Success

8.3.7.1.1 Definition

8.3.7.1.2 Conformance requirement

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.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	**Standard to apply**	**Inter RAT Message**
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if the USIM is present:

2> store the current START value for every CN domain in the USIM [50];

2> if the "START" stored in the USIM [50] for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the USIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if the SIM is present:

2> store the current START value for every CN domain in the UE;

2> if the "START" stored in the UE for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the SIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

~~When the UE receives an HANDOVER FROM UTRAN COMMAND message from UTRAN the UE shall take the following actions:~~

- ~~Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.~~

- ~~For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].~~

- ~~Switch the current connection to the other radio access system.~~

~~NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of the present document.~~

~~NOTE 2: The release of the UMTS radio resources is initiated by the other system.~~

~~NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.~~

Reference(s)

TS 25.331 clause 8.3.7.3, 8.3.7.4.

8.3.7.1.3 Test purpose

To test that the UE supporting both GSM and UTRAN handovers from a UTRAN serving cell to the indicated channel of GSM target cell when the UE is in the speech call active state and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.1.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 51.010 clause 26.6.5.1 shall be referenced for the default parameters of cell 2.

UE : CC State U10 in cell 1, one CS domain RAB is established and no PS domain RABs are established

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports GSM~~ ARM~~AMR,
- UE supports GSM EFR,
- UE supports GSM HR,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 2.

Test Procedure

The SS starts the UTRAN cell and brings the UE into call active state (CC state U10) with AMR. The SS starts GSM cell and configures a traffic channel, then sends 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 UTRAN~~on the target GSM cell. The SS checks whether the handover is performed by checking that the UE transmits the HANDOVER COMPLETE message to the SS through GSM cell.

Depending on the PIXIT parameters the above procedure is executed maximum four times, each time with different target channel in the GSM cell.

UEs for which the PIXIT indicates support for the GSM/ DCS 1800 and/ or GSM/ PCS 1900 band, the test should cover these frequencies in order to verify the correct handling of the IE "Frequency band".

Inter RAT handover is normally preceded by the configuration and activation of compressed mode (depending on UE capabilities/ PIXIT) and the configuration of inter- RAT measurements. The inter RAT handover is normally initiated by the SS upon receiving an event triggered measurement report. The verification of this functionality is covered by other subclauses.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, 4, depending on the PIXIT parameters.

Step	Direction		Message	Comments
	UE	SS		
1	UE			The SS bring the UE into UTRAN U10 state in cell 1
2	SS			The SS configures cell 2 as a GSM cell with a traffic channel: for GSM AMR (M = 1); or for GSM EFR (M = 2); or for GSM FR (M = 3); or for GSM HR (M = 4).
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM AMR (M = 1); or the target channel for GSM EFR (M = 2); or the target channel for GSM FR (M = 3); or the target channel for GSM HR (M = 4).
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 ACCESS	The SS receives this burst on the traffic channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.

Specific message contents

For execution 1:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	Now
RAB Info	~~Not present~~
- RAB identity	0000 0001B
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Inter-system message	
- 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	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable Length BIT STRING without Length Indicator. 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 3

For execution 2:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	~~Not present~~
- RAB identity	0000 0001B
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Inter-system message	
- 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	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable Length BIT STRING without Length Indicator. 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 2

For execution 3:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	**Value/remark**
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	~~Not present~~
- RAB identity	0000 0001B
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Inter-system message	
- 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 system	Single GSM message
- 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

For execution 4:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	~~Not present~~
- RAB identity	0000 0001B
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Inter-system message	
- 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 system	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable Length BIT STRING without Length Indicator. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 4 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

8.3.7.1.5 Test requirement

After step 12 the ongoing call shall be continued on the GSM cell.

8.3.7.2 Inter system handover from UTRAN/To GSM/Data/Same data rate/Success

8.3.7.2.1 Definition

8.3.7.2.2 Conformance requirement

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.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	**Standard to apply**	**Inter RAT Message**
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if the USIM is present:

2> store the current START value for every CN domain in the USIM [50];

2> if the "START" stored in the USIM [50] for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the USIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if the SIM is present:

2> store the current START value for every CN domain in the UE;

2> if the "START" stored in the UE for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the SIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

~~When the UE receives an HANDOVER FROM UTRAN COMMAND message from UTRAN the UE shall take the following actions:~~

- ~~Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.~~

- ~~For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].~~

- ~~Switch the current connection to the other radio access system.~~

~~NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of the present document.~~

~~NOTE 2: The release of the UMTS radio resources is initiated by the other system.~~

~~NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.~~

Reference(s)

TS 25.331 Clause 8.3.7.3, 8.3.7.4.

8.3.7.2.3 Test purpose

To test that the UE handovers to the indicated channel of same data rate in the GSM target cell when it is in the data call active state in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.2.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 51.010 clause 26.6.5.1 or clause 26.13.1.3 (for HSCSD) shall be referenced for the default parameters of cell 2.

UE : CC State U10 in cell 1, one CS domain RAB is established and no PS domain RABs are established

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports UTRAN Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports UTRAN Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM 14.4 kbps data (HSCSD or full rate traffic channel for 14.4 kbit/s user data (TCH/F14.4)),
- UE supports GSM 28.8 kbps data (HSCSD or enhanced circuit switched full rate traffic channel for 28.8 kbit/s user date (E-TCH/F28.8)),
- UE supports GSM 57.6 kbps data,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U10 on cell 2.

Test Procedure

The SS starts the UTRAN cell and brings the UE into data call active state (CC state U10) with a suitable configuration (e.g. Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs for M = 1). The SS starts GSM cell and configures a traffic channel (e.g. 14.4 kbps data channel for M = 1), then sends 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.

Depending on the PIXIT parameters the above procedure is executed maximum three times, each time with different target channel in the GSM cell.

UEs for which the PIXIT indicates support for the GSM/ DCS 1800 and/ or GSM/ PCS 1900 band, the test should cover these frequencies in order to verify the correct handling of the IE "Frequency band".

Inter RAT handover is normally preceded by the configuration and activation of compressed mode (depending on UE capabilities/ PIXIT) and the configuration of inter- RAT measurements. The inter RAT handover is normally initiated by the SS upon receiving an event triggered measurement report. The verification of this functionality is covered by other subclauses.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, depending on the PIXIT parameters.

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1	UE			The SS bring the UE into UTRAN U10 state in cell 1, the configuration is: Streaming/unknown/uplink:14.4 DL:14.4 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 1); Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 2); Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 3).
2	SS			The SS configures cell 2 as a GSM cell with a traffic channel: for GSM 14.4 kbps data (M = 1); or for GSM 28.8 kbps data (M = 2); or for GSM 57.6 kbps data (M = 3).
3	←		HANDOVER FROM UTRAN COMMAND GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM 14.4 kbps data (M = 1); or for GSM 28.8 kbps data (M = 2); or for GSM 57.6 kbps data (M = 3).
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 ACCESS	The SS receives this burst on the traffic channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.

Specific message contents

For execution :

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	~~Not present~~
- RAB identity	0000 0001B
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Inter-system message	
- System type	GSM
- Frequency Band	~~GSM/DCS 1800 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	~~Single~~ GSM message List
- Message	GSM HANDOVER COMMAND formatted as BIT STRING(1..512). The contents of the HANDOVER COMMAND see next table.

If the UE supports 14.4 kbps single slot:

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 = data, 14.5 kbit/s radio interface rate (14.4 kbit/s user data (TCH/F14.4))

If the UE supports HSCSD:

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.3.1 of GSM 51.010, except that the Description of a multi-slot configuration supporting 14.4 kbps user data.

For execution 2:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	~~Not present~~
- RAB identity	0000 0001B
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Inter-system message	
- System type	GSM
- Frequency Band	~~GSM/DCS 1800 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	~~Single~~ GSM message List
- Message	GSM HANDOVER COMMAND formatted as ~~Variable Length~~ BIT STRING(1..512) ~~without Length Indicator~~. The contents of the HANDOVER COMMAND see next table.

If the UE supports enhanced circuit switched full rate traffic channel for 28.8 kbps user data:

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 = data, 29.0 kbit/s radio interface rate (28.8 kbit/s user data (E-TCH/F28.8))

If the UE supports HSCSD:

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.3.1 of GSM 51.010, except that the Description of a multi-slot configuration supporting 28.8 kbps user data.

For execution 3:

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	~~Not present~~
- RAB identity	0000 0001B
- CN domain identity	CS domain
- NAS Synchronization Indicator	Not present
- Re-establishment timer	Use T315
Inter-system message	
- System type	GSM
- Frequency Band	~~GSM/DCS 1800 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	~~Single~~ GSM message List
- Message	GSM HANDOVER COMMAND formatted as ~~Variable Length~~ BIT STRING(1..512)~~ without Length Indicator~~. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND in clause 26.13.3.1 of GSM 51.010, except that the Description of a multi-slot configuration supporting 57.6 kbps user data.

8.3.7.2.5 Test requirement

After step 12 the ongoing call shall be continued on the GSM cell.

8.3.7.3 Inter system handover from UTRAN/To GSM/Data/Data rate down grading/Success

8.3.7.3.1 Definition

8.3.7.3.2 Conformance requirement

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.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	**Standard to apply**	**Inter RAT Message**
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if the USIM is present:

2> store the current START value for every CN domain in the USIM [50];

2> if the "START" stored in the USIM [50] for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the USIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if the SIM is present:

2> store the current START value for every CN domain in the UE;

2> if the "START" stored in the UE for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the SIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

~~When the UE receives an HANDOVER FROM UTRAN COMMAND message from UTRAN the UE shall take the following actions:~~

- ~~Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.~~

- ~~For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].~~

- ~~Switch the current connection to the other radio access system.~~

~~NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of the present document.~~

~~NOTE 2: The release of the UMTS radio resources is initiated by the other system.~~

~~NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.~~

Reference(s)

TS 25.331 Clause 8.3.7.3, 8.3.7.4.

8.3.7.3.3 Test purpose

To test that the UE handovers to the indicated channel of lower data rate in the GSM target cell when it is in the data call active state in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.3.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 51.010 clause 26.6.5.1 or clause 26.13.1.3 (for HSCSD) shall be referenced for the default parameters of cell 2.

UE: CC State U10 in cell 1, one CS domain RAB and one PS domain RAB (e.g. interactive/ background UL: 32kbps, DL: 32 kbps) is established (Conditional on support of CS+PS in UE).

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,
- UE supports UTRAN Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports UTRAN Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs,
- UE supports GSM 14.4 kbps data (HSCSD or full rate traffic channel for 14.4 kbit/s user data (TCH/F14.4)),
- UE supports GSM 28.8 kbps data (HSCSD or enhanced circuit switched full rate traffic channel for 28.8 kbit/s user date (E-TCH/F28.8)),
- ~~—~~UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.
- UE support CS and PS service.

Foreseen final state of the UE

The UE is in CC state U10 on cell 2.

Test Procedure

The SS starts the UTRAN cell and brings the UE into data call active state (CC state U10) with a suitable configuration (e.g. Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs for M = 1). The SS starts GSM cell and configures a traffic channel (e.g. 14.4 kbps data channel for M = 1), then sends 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.

Upon completion of the handover, depending on UE capabilities, the UE performs routing area update and (re-) establishes the connection towards the PS domain.

Depending on the PIXIT parameters the above procedure is executed maximum three times, each time with different target channel in the GSM cell.

Expected sequence

This sequence is performed for a maximum execution counter M = 1, 2, 3, depending on the PIXIT parameters.

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1	UE			The SS bring the UE into UTRAN U10 state in cell 1, the configuration is: Streaming/unknown/uplink:28.8 DL:28.8 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 1); Streaming/unknown/uplink:57.6 DL:57.6 kbps/CS RAB + uplink:3.4 DL:3.4 kbps SRBs (for M = 2 and 3).
2	SS			The SS configures cell 2 as a GSM cell with a traffic channel: for GSM 14.4 kbps data (M = 1 and 2); or for GSM 28.8 kbps data (M = 3).
3	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the target channel for GSM 14.4 kbps data (M = 1 and 2); or for GSM 28.8 kbps data (M = 3).
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 ACCESS	The SS receives this burst on the traffic channel of cell 2 (GSM cell) It implies that the UE has switched to GSM cell.
6	→		HANDOVER ACCESS	
7	→		HANDOVER ACCESS	
8	→		HANDOVER ACCESS	
9	←		PHYSICAL INFORMATION	
10	→		SABM	
11	←		UA	
12	→		HANDOVER COMPLETE	The SS receives the message on the traffic channel of GSM cell.
13	→		ROUTING AREA UPDATE	Conditional on Class A UE.

Specific message contents

For execution 1:

Same as the message contents of clause 8.3.7.2 for M = 1.

For execution 2:

Same as the message contents of clause 8.3.7.2 for M = 1.

For execution 3:

Same as the message contents of clause 8.3.7.2 for M = 2.

8.3.7.3.5 Test requirement

After step 12 the ongoing call shall be continued on the GSM cell.

8.3.7.4 Inter system handover from UTRAN/To GSM/Speech/Establishment/Success

8.3.7.4.1 Definition

8.3.7.4.2 Conformance requirement

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.

The UE shall:

1> establish the connection to the target radio access technology, by using the contents of the IE "Inter-RAT message". This IE contains a message specified in another standard, as indicated by the IE "System type", and carries information about the candidate/ target cell identifier(s) and radio parameters relevant for the target radio access technology. The correspondence between the value of the IE "System type", the standard to apply and the message contained within IE "Inter RAT message" is shown in the following:

Value of the IE "System type"	**Standard to apply**	**Inter RAT Message**
GSM	GSM TS 04.18, version 8.5.0 or later	HANDOVER COMMAND
cdma2000	TIA/EIA/IS-2000 or later, TIA/EIA/IS-833 or later, TIA/EIQ/IS-834 or later	

1> if the IE "System type" has the value "GSM":

2> if the IE "Frequency band" has the value "GSM /DCS 1800 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1800 band".

2> if the IE "Frequency band" has the value " GSM /PCS 1900 band used":

3> set the BAND_INDICATOR [45] to "ARFCN indicates 1900 band".

1> apply the "Inter RAT Message" according to the "standard to apply" in the table above.

1> if the IE "RAB information List" is included in the HANDOVER FROM UTRAN COMMAND message:

2> if the IE "RAB information List" includes one IE "RAB Info" with the IE "CN domain Identity" set to "CS domain":

3> connect upper layer entities corresponding to the indicated CS domain RAB to the radio resources indicated in the inter-RAT message.

NOTE: In this version of the specification the maximum number of CS domain RABs which may be included in the IE "RAB information List" is limited to 1.

NOTE: Requirements concerning the establishment of the radio connection towards the other radio access technology and the signalling procedure are outside the scope of this specification.

Upon successfully completing the handover, the UE shall:

1> if the USIM is present:

2> store the current START value for every CN domain in the USIM [50];

2> if the "START" stored in the USIM [50] for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

3> delete the ciphering and integrity keys that are stored in the USIM for that CN domain;

3> inform the deletion of these keys to upper layers.

1> if the SIM is present:

    2> store the current START value for every CN domain in the UE;

    2> if the "START" stored in the UE for a CN domain is greater than or equal to the value "THRESHOLD" of the variable START_THRESHOLD:

        3> delete the ciphering and integrity keys that are stored in the SIM for that CN domain;

        3> inform the deletion of these keys to upper layers.

1> if there are any NAS messages with the IE "CN domain identity" set to "CS domain" for which the successful delivery of the INITIAL DIRECT TRANSFER message or UPLINK DIRECT TRANSFER message on signalling radio bearer RB3 or signalling radio bearer RB4 that have not yet been confirmed by RLC:

    2> retransmit those NAS messages to the network on the newly established radio connection to the target radio access technology.

1> clear or set variables upon leaving UTRA RRC connected mode as specified in subclause 13.4.

NOTE: The release of the UMTS radio resources is initiated from the target RAT.

~~When the UE receives an HANDOVER FROM UTRAN COMMAND message from UTRAN the UE shall take the following actions:~~

- ~~Establish the connection to the other radio access system, by using the contents of the IE "Inter system message". This IE contains candidate/ target cell identifier(s) and radio parameters relevant for the other radio access system.~~

- ~~For each IE "Remaining radio access bearer", associate the radio access bearer given by the IE "RAB info" to the radio resources in the target system given by the IE "Inter system message". Other information for making the association may be included in the IE "Inter system message" and requirements may be stated in the specifications relevant for the target system [FFS].~~

- ~~Switch the current connection to the other radio access system.~~

~~NOTE 1: Requirements concerning the establishment of the radio connection towards the other radio access system and the signalling procedure are outside the scope of the present document.~~

~~NOTE 2: The release of the UMTS radio resources is initiated by the other system.~~

~~NOTE 3: Currently only one radio access bearer can be associated with the IE "Inter-system message", and this association is limited to the radio access bearers in the CS domain. It is assumed that all the radio access bearers in the PS domain, if any, remain after the handover.~~

Reference(s)

TS 25.331 Clause 8.3.7.3, 8.3.7.4.

8.3.7.4.3 Test purpose

To test that the UE handovers to the indicated channel in the GSM target cell when it is in the call establishment phase in the UTRAN serving cell and receives an HANDOVER FROM UTRAN COMMAND.

8.3.7.4.4 Method of test

Initial conditions

System Simulator : 2 cells - Cell 1 is UTRAN, Cell 2 is GSM. GSM 51.010 clause 26.6.5.1 shall be referenced for the default parameters of cell 2.

UE : CC State U1 in cell 1, no RABs are established

Related ICS/IXIT statement(s)

- UE supports both GSM and UTRAN Radio Access Technologies,

- UE supports UTRAN AMR,
- UE supports GSM FR,
- UE supports GSM-P, GSM-E, GSM-DCS, GSM-450, GSM-480.

Foreseen final state of the UE

The UE is in CC state U1 on cell 2.

Test Procedure

The SS starts the UTRAN cell and the UE is triggered to initialise an MO speech call. During the call establishment phase, after the SS receives SETUP message the SS starts GSM cell and configures a dedicated channel, then sends the UE an HANDOVER FROM UTRAN COMMAND indicating the dedicated channel in the target GSM 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.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1	UE			To trigger the UE to initialise an MO call
2	→		SETUP	U1
3	SS			The SS starts the GSM cell and configure a dedicated channel SDCCH.
4	←		HANDOVER FROM UTRAN COMMAND-GSM	Send on cell 1 (UTRAN cell) and the message indicates: the dedicated channel SDCCH.
5	UE			The UE accepts the handover command and switches to the GSM dedicated channel specified in the HANDOVER FROM UTRAN COMMAND-GSM
6	→		HANDOVER ACCESS	The SS receives this burst on the dedicated channel of cell 2 (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 dedicated channel of GSM cell.

Specific message contents

HANDOVER FROM UTRAN COMMAND-GSM

Information Element	Value/remark
Message Type	
RRC transaction identifier	Arbitrarily selects one integer between 0 to 3
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE is present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs are omitted.
- Message authentication code	SS calculates the value of MAC-I for this message and writes to this IE.
- RRC Message sequence number	SS provides the value of this IE, from its internal counter.
Activation time	now
RAB Info	Not present
Inter-system message	
- 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	Single GSM message
- Message	GSM HANDOVER COMMAND formatted as Variable Length BIT STRING without Length Indicator. The contents of the HANDOVER COMMAND see next table.

HANDOVER COMMAND

Same as the HANDOVER COMMAND for M = 4 in clause 26.6.5.2 of GSM 51.010 version 8.2.0 Release 1999

8.3.7.4.5 Test requirement

At step 13 the SS shall receive HANDOVER COMPLETE message on the dedicated channel of the GSM cell.

3GPP TSG-T1 Meeting #16
Yokohama, Japan, 29th July – 2nd August 2002

Tdoc ⌘ T1-020528

3GPP TSG-T1/SIG Meeting #24
Yokohama, Japan, 29-31 July 2002

Tdoc ⌘ T1S-020518

CR-Form-v7

CHANGE REQUEST

⌘ **TS 34.123-1 CR 274** ⌘ **rev -** ⌘ Current version: **5.0.1** ⌘

*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 clause 6 for Package 2 (Idle Mode)
Source: ⌘	Ericsson, Motorola
Work item code: ⌘	TEI
Date: ⌘	2002-07-28
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. Corrections to test cases

Summary of change: ⌘ 6.1.2.8

1. Initial conditions:
   - Changed from CPICH_Ec/Io to CPICH_RSCP to be used for the cell-ranking criterion R for FDD cells.
   - Added that system information in each cell should include the other cells in neighbouring cell lists.
2. Metod of Test and Test Procedure are aligned with Test Case in section 6.1.2.1:
   - CPICH_Ec/Io changed to CPICH_Ec. Qqualmin changed to Qrxlevmin. Squal changed to Srxlevmin.
   - To make the test sequence more clear, the test procedure expanded to show each specific step (avoid iteration).
   - At test procedure step h, UE is switched off only, as there is no interface in UE in order to erase stored information for UE cell selection.
   - When a cell is indicated as barred (CellBarred = Barred), the RRC protocol requires that IEs “Intra-frequency cell re-selection indicator” and “Tbarred” are included in the SIB. When a cell is indicated as not

barred (CellBarred = Not barred), these parameters may not be included.

- For completeness, tables are completed with all relevant values, although default parameter settings are used.
- Some minor errors corrected.

3. Test procedure, step e: Added that also PLMN 1 should be included in the Equivalent PLMN list received via Cell 3. This will make sure that UE, while camped on Cell 3, reads barring information from Cell 1. In a real network scenario, this PLMN and carrier configuration seems most likely.

6.2.1.1

1. Additional conformance requirements copied from core specification. References added.
2. Initial conditions: For clarification, table positions for PLMN have been split, to visualise the USIM fields correctly.

6.2.1.6

1. Conformance requirement 2 updated according to core specification.
2. Initial conditions: For clarification, table positions for PLMN have been split, to visualise the USIM fields correctly.

6.2.1.7

1. Initial conditions: Added that in the test case, neighbouring cell lists in system information of each cell does not contain other cells, as this would make a UE perform cell re-selection to another access technology of a PLMN.
   For clarification, table positions for PLMN have been split, to visualise the USIM fields correctly.

6.2.1.8:

1. Initial conditions: Added that in the test case, neighbouring cell lists in system information of each cell does not contain other cells, as this would make a UE perform cell re-selection to another access technology of a PLMN.
   For clarification, table positions for PLMN have been split, to visualise the USIM fields correctly.

6.2.1.9

1. Initial conditions:
   Test channel for cell 4 changed. According to TS 25.304 section (also listed as Conformance requirement 2 in this Test case), a UE will only consider the strongest cell on a carrier.
   Test channel for cell 6 changed, since cell 5 uses the same GSM carrier.
   For clarification, table positions for PLMN have been split, to visualise the USIM fields correctly.
   CPICH_EC (FDD) and P-CCPCH_RSCP (TDD) levels modified to account for measurement accuracy according to TS 25 133 (FDD) and TS 25.123 (TDD).

6.2.2.1

1. Initial conditions:
   Deleted that the USIM does contain any preffered RAT. This is irrelevant for the test case
   Added that the cells belong to the same PLMN and are listed as neighbours in system information.

Editorial corrections to parameter settings.
P-CCPCH RSCP (TDD) level changed to 60 to align with CPICH Ec (FDD).

2. Test procedure: At test procedure step f, UE is switched off only, as there is no interface in UE in order to erase stored information for UE cell selection.
3. Test procedure: Deleted that step g is not applicable for TDD. There is no reason for this restriction.
4. Test requirements: Deleted that requirement 3 is not applicable for TDD. There is no reason for this restriction.

6.2.2.2

1. Conformance requirement: Reference corrected (TS 23.122).
2. Initial conditions:
   Deleted that the USIM does contain any preffered RAT. This is irrelevant for the test case
   Added that the cells belong to the same PLMN and are listed as neighbours in system information.
   Editorial corrections to parameter settings.
   P-CCPCH RSCP (TDD) level changed to align with CPICH Ec (FDD).
3. Test procedure: At test procedure step f, UE is switched off only, as there is no interface in UE in order to erase stored information for UE cell selection.

6.2.2.3

1. Test method changed to Method B, as this method is seen as more appropriate for GSM to UTRAN tests. Core specification does not state that UE shall perform cell re-selection to UTRAN in case random access is not responded.

Consequences if not approved:	⌘	The test prose cannot test UE correctly.

Clauses affected:	⌘	6.1.2.8, 6.2.1.1, 6.2.1.6, 6.2.1.7, 6.2.1.8, 6.2.1.9, 6.2.2.1, 6.2.2.2, 6.2.2.3				
		Y	**N**			
Other specs affected:	⌘		**X**	Other core specifications	⌘	
			X	Test specifications		
			X	O&M Specifications		
Other comments:	⌘	Affects R99, R4 and R5 UE 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.

6.1.2.8 Cell reselection: Equivalent PLMN

6.1.2.8.1 Definition

Test to verify that the UE performs the cell reselection correctly to a cell belonging to a PLMN Equivalent to the registered PLMN, if the serving cell of registered PLMN becomes barred or S<0.

6.1.2.8.2 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 mode and in TS 25.123 for TDD mode.

   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. The best ranked cell is the cell with the highest R value. If an FDD cell is ranked as the best cell, the UE shall perform cell re-selection to that FDD cell. If a TDD cell is ranked as the best cell, the UE shall perform cell re-selection to that TDD cell.

   4.3 In all cases, the UE shall reselect the new cell, only if the cell reselection criteria are fulfilled during a time interval Treselection.

   4.4 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME. However, TEMP_OFFSET_n and PENALTY_TIME_n are only applicable if the usage of HCS is indicated in system information.

5. When cell status "barred" is indicated, the UE shall select another cell according to the following rule:

   5.1 If the "Intra-frequency cell re-selection indicator" IE in Cell Access Restriction IE is set to value "allowed", the UE may select another cell on the same frequency if selection/re-selection criteria are fulfilled.

   5.2 If the "Intra-frequency cell re-selection indicator" IE is set to "not allowed" the UE shall not re-select a cell on the same frequency as the barred cell. For emergency call, the Intra-frequency cell re-selection indicator IE" shall be ignored, i.e. even if it is set to "not allowed" the UE may select another intra-frequency cell.

References

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

5. TS 25.304, 5.3.1.1

6.1.2.8.3 Test purpose

1. To confirm that the UE treats the cell of the equivalent PLMN as a cell of the current PLMN.
2. To verify that the UE performs cell reselection on the following occasions:

   2.1 Serving cell becomes barred.

   2.2 S<0 for serving cell.
3. To verify conformance requirement 5.

NOTE: Reselection triggered by the cell becoming a part of a forbidden registration area is tested in clause 9.4.2.3 "Location updating / rejected / location area not allowed" and 9.4.2.4 "Location updating / rejected / roaming not allowed in this LA".

6.1.2.8.4 Method of test

Initial conditions

Treselection, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME are not used, so the cell-ranking criterion R equals CPICH_RSCP~~Ec/Io~~ for FDD cells, and P-CCPCH RSCP for TDD cells.

The UE is Idle Updated on PLMN1 in cell 1, and The SS includes PLMN 2 and PLMN 3 under IE ‘Equivalent PLMN’ during Idle Update Procedure.

Cell 1 indicates in System Information Block Type 11 that Cell 2 and Cell 3 are neighbouring cells.

Cell 2 indicates in System Information Block Type 11 that Cell 1 and Cell 3 are neighbouring cells.

Cell 3 indicates in System Information Block Type 11 that Cell 1 and Cell 2 are neighbouring cells.

Step a-c (FDD):

Parameter	**Unit**	**Cell 1**	**Cell 2**	**Cell 3**
Test Channel		1	1	2
PLMN		PLMN 1	PLMN 2	PLMN 3
CPICH_Ec~~/Io~~	d~~D~~Bm/3.84 MHz	~~-13~~-60	~~-15~~-70	~~-17~~-80
Qrxlev~~qual~~min	d~~D~~Bm	~~-20~~-115	~~-20~~-115	~~-20~~-115
Srxlev~~qual~~*	d~~D~~B	~~7~~55	~~5~~45	~~3~~35
~~Intra-frequency cell re-selection indicator~~		~~Not Allowed~~	~~Not Allowed~~	~~Not Allowed~~
CellBarred		Not barred~~0~~	~~0~~Not barred	~~0~~Not barred

Step a-c (TDD):

Parameter	**Unit**	**Cell 1**	**Cell 2**	**Cell 3**
P-CCPCH RSCP	dBm	-69	-71	-73
Qrxlevmin	dBm	-103	-103	-103
Srxlev*	dB	34	32	30

Step d-f:

CellBarred		Not barred~~0~~->Barred~~1~~	~~0~~	~~0~~
Intra-frequency cell re-selection indicator		Not Allowed		
Tbarred	s	10		

Step g-h:

Intra-frequency cell re-selection indicator		Not Allowed -> Allowed	~~Not Allowed -> Allowed~~	~~Not Allowed -> Allowed~~

~~Step i (FDD):~~

~~Qqualmin~~	~~dB~~	~~-20 -> -10~~	~~-20~~	~~-20~~
~~Squal*~~	~~dB~~	~~7 -> -3~~	~~5~~	~~3~~

Step i-k:

Parameter	**Unit**	**Cell 1**	**Cell 2**	**Cell 3**
CellBarred		Barred -> Not barred	Not barred	Not barred

Step l-m (FDD):

Qrxlevmin	dBm	-115 -> -50	-115	-115
Srxlev*	dBm	55 -> -10	45	35

Step l-m (TDD):

Qrxlevmin	dBm	-103 -> -60	-103	-103
Srxlev*	dBm	34 -> -9	32	30

Test procedure

Method C is applied.

a) The SS activates Cell 1-3 and monitors them for random access requests from the UE.

b) The UE is switched on.

c) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 2 and 3 are Equivalent to PLMN 1 in Location Update Accept Message.

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

e) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 1 and 2 are~~is~~ Equivalent to PLMN 3 in Location Update Accept Message.

f) The SS sets "Intra-frequency cell re-selection indicator" to "Allowed".

g) The SS waits for random access requests from the UE. A complete Location Update is done.

h) The ~~stored information cell selection list in the UE is deleted and the~~ UE is switched off.

i) ~~Step a-e) is repeated except that in step d) for FDD cells, Qqualmin is increased to -10 dB, or in step d) for TDD cells, Qrxlevmeas is increased to [TBD], so S will become negative instead of the cell being barred while maintaining the same RF level.~~ The SS activates Cell 1-3 and monitors them for random access requests from the UE.

j) The UE is switched on.

k) The SS waits for random access requests from the UE. A complete Location Update is done. SS specifies PLMN 2 and 3 are Equivalent to PLMN 1 in Location Update Accept Message.

l) For FDD cell, Qrxlevmin is increased to -50 dBm, so S will become negative.
For TDD cell, Qrxlevmin is increased to –60dBm, so S will become negative.
The SS notifies UE of the BCCH modification

m) The SS waits for random access requests from the UE.

6.1.2.8.5 Test requirements

1) In step c), 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 3.

3) In step g), the UE shall respond on Cell 2.

4) In step ~~i~~k), after the UE has responded on Cell 1, it shall not respond on any other cell within 1 min.

5) In step m), the UE shall respond on Cell 2.

6.2 Multi-mode environment (2G/3G case)

6.2.1 PLMN and RAT selection and reselection

6.2.1.1 Selection of the correct PLMN and associated RAT

6.2.1.1.1 Definition

Test to verify that the UE selects the correct combination of PLMN and associated access technology according to the fields on the USIM.

6.2.1.1.2 Conformance requirement

1. At switch on, or following recovery from lack of coverage,the MS selects the registered PLMN or equivalent PLMN (if it is available) using all access technologies that the MS is capable of and if necessary (in the case of recovery from lack of coverage, see TS 23.122, clause 4.5.2) attempts to perform a Location Registration.

   If successful registration is achieved, the MS indicates the selected PLMN.

   If there is no registered PLMN, or if registration is not possible due to the PLMN being unavailable or registration failure, the MS follows either Automatic or Manual Network Selection Mode Procedure depending on its operating mode.

2. The “HPLMN Selector with Access Technology”, “User Controlled PLMN Selector with Access Technology” and “Operator Controlled PLMN Selector with Access Technology” data fields in the SIM include associated access technologies for each PLMN entry. The PLMN/access technology combinations are listed in priority order. If an entry includes more than one access technology, then no priority is defined for the preferred access technology and the priority is an implementation issue.

3. To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together with PLMN codes. This version of the specification does not support multiple HLPMN codes and the “HPLMN Selector with Access Technology” data field is only used by the MS to get the HPLMN access technologies. The HPLMN code is the PLMN code included in the IMSI.

4. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   4.1 HPLMN (if not previously selected);

4.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

4.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

4.4 Other PLMN/access technology combinations with received high quality signal in random order;

4.5 Other PLMN/access technology combinations in order of decreasing signal quality.

References

1. TS 23.122, clause 4.4.3.1.
2. TS 23.122, clause 4.4.3
3. TS 23.122, clause 4.4.3
4. TS 23.122, clause 4.4.3.1.1

NOTE: TS 31.102 defines the USIM fields.

6.2.1.1.3 Test purpose

1. To verify that the UE selects the correct combination of HPLMN/~~and associated~~ access technology combination according to the fields on the USIM.

6.2.1.1.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3 and 6.4.

Cell	CPICH_Ec / RF signal level [dBm/3.84 MHz]	P-CCPCH_RSCP/ RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-48	-48	1	PLMN 1	GSM
Cell 2	-72	-61	1	PLMN 1	UTRAN
Cell 3	-75	-64	2	PLMN 2	UTRAN
Cell 4	-50	-50	2	PLMN 2	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}			
$\text{EF}_{\text{HPLMNwAcT}}$	1st	PLMN 1	GSM
	2nd	PLMN1	UTRAN

USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}			
$\text{EF}_{\text{HPLMNwAcT}}$	1st	PLMN 2	UTRAN
	2nd	PLMN 2	GSM

Test procedure

Method B is applied.

a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE. The UE shall have a USIM with settings according to USIM A.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The UE is switched off and a USIM with settings according to USIM B is inserted.

e) The UE is switched on.

f) The SS waits for random access requests from the UE.

6.2.1.1.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1. The displayed PLMN shall be PLMN1 (GSM).

2) In step f), the response from the UE shall be on Cell 3. The displayed PLMN shall be PLMN2 (UTRAN).

<<<<<<<<<<<<NEXT CHANGED SECTION>>>>>>>>>>>>>>>>>>

<<<<<<<<<<<<<<<<<<<<>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

6.2.1.6 Selection of RAT for HPLMN; Automatic mode

6.2.1.6.1 Definition

Test to verify that the UE selects the HPLMN RAT according to the HPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall try to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.6.2 Conformance requirement

1. To allow provision for multiple HPLMN codes, the HPLMN access technologies are stored on the SIM together with PLMN codes. This version of the specification does not support multiple HLPMN codes and the "HPLMN Selector with Access Technology" data field is only used by the MS to get the HPLMN access technologies. The HPLMN code is the PLMN code included in the IMSI.

2. The “HPLMN Selector with Access Technology”, “User Controlled PLMN Selector with Access Technology” and “Operator Controlled PLMN Selector with Access Technology” data fields in the SIM include associated access technologies for each PLMN entry. The PLMN/access technology combinations are listed in priority order. If an entry includes more than one access technology, then no priority is defined for the preferred access technology and the priority is an implementation issue.

   ~~For HPLMN, the MS shall search for all access technologies it is capable of. The MS shall start its search using the access technologies stored in the "HPLMN Selector with Access Technology" data field on the SIM in priority order (i.e. the PLMN/access technology combinations are listed in priority order, if an entry includes more than one access technology then no priority is defined for the preferred access technology and the priority is an implementation issue).~~

3. Automatic Network Selection Mode Procedure:

   The MS selects and attempts registration on other PLMNs, if available and allowable in the following order:

   3.1 HPLMN (if not previously selected);

   3.2 Each PLMN in the "User Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   3.3 Each PLMN in the "Operator Controlled PLMN Selector with Access Technology" data field in the SIM (in priority order);

   3.4 Other PLMN/access technology combinations with received high quality signal in random order;

   3.5 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.
2. TS 23.122, clause 4.4.3.1.1 (f).
3. TS 23.122, clause 4.4.3.1.1.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.6.3 Test purpose

1. To verify that:

   1.1 the UE searches for a HPLMN RAT according to the HPLMN Selector with Access Technology data field on the USIM in priority order.

   1.2 If no RAT on the priority list is available, the UE tries to obtain registration on the same PLMN using other UE-supported RATs.

6.2.1.6.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3 and 6.4.

Cell	CPICH_Ec / RF signal level [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP / RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	-61	1	PLMN 2	UTRAN
Cell 2	-48	-48	1	PLMN 2	GSM
Cell 3	-75	-64	2	PLMN 3	UTRAN
Cell 4	-50	-50	2	PLMN 3	GSM

The UE is equipped with a USIM containing default values except for those listed below.

USIM A

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN 2	UTRAN
	2nd	PLMN 2	GSM

USIM B

USIM field	Priority	PLMN	Access Technology Identifier
EF_{LOCI}		PLMN 1	
$EF_{HPLMNwAcT}$	1st	PLMN 2	UTRAN
	2nd		

Test procedure

Method B is applied.

a) The SS activates cells 1-4 and monitors the cells for random access requests from the UE. The UE shall have a USIM with settings according to USIM A.

b) The UE is switched on.

c) The SS waits for random access requests from the UE.

d) The UE is switched off and a USIM with settings according to USIM A is again inserted. All cells except Cell 1 are active.

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

f) The UE is switched off and a USIM with settings according to USIM B is inserted. All cells except Cell 1 are active.

g) The UE is switched on.

h) The SS waits for random access requests from the UE.

6.2.1.6.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{HPLMNwAcT}$). The displayed PLMN shall be PLMN2 (UTRAN).

2) In step e), the response from the UE shall be on Cell 2 (2nd priority RAT for $EF_{HPLMNwAcT}$). The displayed PLMN shall be PLMN2 (GSM).

3) In step h), the response from the UE shall be on Cell 2. The displayed PLMN shall be PLMN2 (GSM). (PLMN2 is not available on UTRAN so registration on the same PLMN is attempted using other UE-supported RATs).

6.2.1.7 Selection of RAT for UPLMN; Automatic mode

6.2.1.7.1 Definition

Test to verify that the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM. If no RAT on the list is available, the UE shall not try to obtain registration on the same PLMN(s) with other RAT(s) but instead search for PLMNs in the OPLMN list.

6.2.1.7.2 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.

6.2.1.7.3 Test purpose

1. To verify that:

   1.1 the UE selects the UPLMN RAT according to the UPLMN RAT priority list on the USIM.

1.2 If no RAT on the list is available, the UE does not try to obtain registration on the same PLMN with another RAT but instead searches for PLMNs in the OPLMN list.

6.2.1.7.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell levels are from tables 6.3 and 6.4.

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 / RF signal level [dBm/3.84 MHz] (FDD)	P-CCPCH / RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	-61	1	PLMN 3	UTRAN
Cell 2	-48	-48	1	PLMN 3	GSM
Cell 3	-75	-64	2	PLMN 4	UTRAN
Cell 4	-50	-50	2	PLMN 4	GSM
Cell 5	-78	-67	3	PLMN 5	UTRAN

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

Test procedure

Method B 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.

d) Cell 1 is switched off.

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

f) Cell 4 is switched off.

g) The SS waits for random access requests from the UE.

6.2.1.7.5 Test Requirements

1) In step c), the response from the UE shall be on Cell 1 (1st priority RAT for $EF_{PLMNwAcT}$). The displayed PLMN shall be PLMN3 (UTRAN).

2) In step e), the response from the UE shall be on Cell 4 (2nd priority RAT for $EF_{PLMNwAcT}$). The displayed PLMN shall be PLMN4 (GSM).

3) In step g), the response from the UE shall be on Cell 5 (1st priority RAT for $EF_{OPLMNwAcT}$). The displayed PLMN shall be PLMN5 (UTRAN).

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 RAT on the list is available, the UE shall not try to obtain registration on the same PLMN(s) with other RAT(s) but instead 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 RAT on the list is available, the UE does not try to obtain registration on the same PLMN(s) with other RAT(s) but instead 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 and 6.4.

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 / RF signal level [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP / RF signal level [dBm] (TDD)	Test Channel	PLMN	Radio Access Technology
Cell 1	-72	-61	1	PLMN 5	UTRAN
Cell 2	-48	-48	1	PLMN 5	GSM
Cell 3	-75	-64	2	PLMN 6	UTRAN
Cell 4	-50	-50	2	PLMN 6	GSM
Cell 5	-78	-67	3	PLMN 7	UTRAN

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

Test procedure

Method B 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.

d) Cell 1 is switched off.

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

f) Cell 4 is switched off.

g) The SS waits for random access requests from the UE.

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 2, 3 or 5 (other PLMN/access technology combination) with associated PLMN5 (GSM), PLMN6 (UTRAN) or PLMN7 (UTRAN) shown.

6.2.1.9 Selection of "Other PLMN / access technology combinations"; Automatic mode

6.2.1.9.1 Definition

Test to verify that if neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE first tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order" and secondly on "Other PLMN/access technology combinations in order of decreasing signal quality".

6.2.1.9.2 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.

   In 1.5, the MS shall order the PLMN/access technology combinations in order of decreasing signal quality within each access technology. The order between PLMN/access technology combinations with different access technologies is an MS implementation issue.

   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.

2. UTRA case: The UE shall scan all RF channels in the UTRA band according to its capabilities to find available PLMNs. On each carrier, the UE shall search for the strongest cell according to the cell search procedures (for FDD, see TS 25.214, and TDD, see TS 25.224) and read its system information, in order to find out which PLMN the cell belongs to. If the UE can read the PLMN identity, the found PLMN shall be reported to the NAS as a high quality PLMN (but without the RSCP value), provided that the following high quality criterion is fulfilled:

   - For an FDD cell, the measured primary CPICH RSCP value shall be greater than or equal to -95 dBm.

   - For a TDD cell, the measured P-CCPCH RSCP shall be greater than or equal to –84 dBm.

   Found PLMNs that do not satisfy the high quality criterion, but for which the UE has been able to read the PLMN identities are reported to the NAS together with the CPICH RSCP value for UTRA FDD cells and P-CCPCH RSCP for UTRA TDD cells.

3. GSM case: A PLMN shall be understood to be received with high quality signal if the signal level is above -85 dBm.

References

1. TS 23.122, clause 4.4.3.1.1.
2. TS 25.304, clause 5.1.2.2.
3. TS 03.22, clause 4.4.3.

NOTE: TS 31.102 defines the USIM fields.

6.2.1.9.3 Test purpose

1. To verify that:

    1.1 If neither RPLMN, HPLMN, UPLMN nor OPLMN is available, the UE tries to obtain registration on "Other PLMN/access technology combinations with received high quality signal in random order".

    1.2 If no PLMN is available in test purpose 1.1, the UE tries to obtain registration on "Other PLMN/access technology combinations in order of decreasing signal quality".

2. The "random order" in test purpose 1.1 is not verified.

6.2.1.9.4 Method of test

Initial conditions

The UE is in automatic PLMN selection mode.

Cell	CPICH_Ec /RF signal level [dBm/3.84 MHz] (FDD)	P-CCPCH_RSCP / RF signal level [dBm] (TDD)	"High Quality signal"	Test Channel	PLMN	Radio Access Technology
Cell 1	-80	-69	Yes	1	PLMN 7	UTRAN
Cell 2	-65	-65	Yes	1	PLMN 8	GSM
Cell 3	-~~98~~103	-~~87~~93	No	2	PLMN 9	UTRAN
Cell 4	-~~101~~-110	-90100	No	~~2~~3	PLMN 10	UTRAN
Cell 5	~~-88~~-90	-88	No	3	PLMN 11	GSM
Cell 6	-~~91~~95	-91	No	~~3~~4	PLMN 12	GSM

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

Test procedure

Method B is applied.

a) The SS activates cells 1-6 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.

d) The cell on which a response was received, is switched off.

e) Step c-d) is repeated until the UE informs that no network is available.

6.2.1.9.5 Test Requirements

1) In step c), the displayed PLMN is noted.

2) When the test procedure has finished, the noted PLMNs shall have appeared in the following order: PLMN7, PLMN8 in random order followed by the other PLMNs. PLMN9 shall come before PLMN10 and PLMN11 shall come before PLMN12.

6.2.2 Cell selection and reselection

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 specified above, 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 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 cell reselection criteria are fulfilled during a time interval Treselection.

   4.4 The cell-ranking criterion R is derived from Q, Qhyst, Qoffset, TEMP_OFFSET and PENALTY_TIME. However, TEMP_OFFSET and PENALTY_TIME are only applicable if the usage of HCS is indicated in system information.

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 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

~~The USIM does not contain any preferred RAT.~~

All cells belong to the same PLMN.

The Inter-RAT Cell Info List of Cell 1 (UTRAN) refers to Cell 2 (GSM) and Cell 3 (GSM).

The 3G Neighbour Cell Description of Cell 2 (GSM) and Cell 3 (GSM) refers to Cell 1 (UTRAN)

Step a-c:

Parameter	**Unit**	**Cell 1 (UTRAN)**
Test Channel		1
CPICH Ec (FDD)	dBm	-60
P-CCPCH RSCP (TDD)	dBm	-60~~3~~
Qrxlevmin	dBm	-100
Srxlev*	dBm	40
CellBarred		~~0~~Not barred

Parameter	**Unit**	**Cell 2 (GSM)**	**Cell 3 (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		~~0 -> 1~~Not barred -> Barred
Tbarred	s	80

Step g:

Parameter	**Unit**	**Cell 1 (UTRAN)**
Qrxlevmin	dB	-100 -> -40
Srxlev*	dB	40 -> -20

Test procedure

Method B is applied.

a) The SS activates cells 1, 2, and 3. The SS monitors cells 1, 2 and 3 for random access requests from the UE.

b) The UE is switched on.

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

d) The SS sets Cell 1 to be barred.

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

f) The ~~stored information cell selection list in the UE is deleted and the~~ UE is switched off.

g) Step a-e) is repeated except that in step d), Qrxlevmin is increased, so S will become negative instead of being barred. ~~Step g does not apply to TDD cells.~~

6.2.2.1.5 Test Requirements

1) In step c), 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 2.

3) In step g), the UE shall respond on Cell 2 after Qrxlevmin is increased. ~~Step g does not apply to the testing of TDD cells.~~

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~~23.122, clause 4.5.

6.2.2.2.3 Test purpose

1. To verify that the UE performs 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

The USIM does not contain any preferred RAT.

The 3G Neighbour Cell Description of Cell 1 (GSM) refers Cell 2 (UTRAN) and Cell 3 (UTRAN).

The Inter-RAT Cell Info List of Cell 2 (UTRAN) and Cell 3 (UTRAN) refers to Cell 1 (GSM).

Step a-c:

Parameter	**Unit**	**Cell 1 (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	dBm	0
~~CellBarred~~CELL_BAR_ACCESS		Not barred~~0~~
C1*	dBm	20

Parameter	**Unit**	**Cell 2 (UTRAN)**	**Cell 3 (UTRAN)**
P-CCPCH_RSCP (TDD)	dBm	-60~~65~~	-~~67~~70
CPICH_Ec (FDD)	dBm/3.84 MHz	-60	-70
Qrxlevmin	dBm	-100	-100
Srxlev*	dBm	40	30

Step d-e:

Parameter	**Unit**	**Cell 1 (GSM)**
~~CellBarred~~CELL_BAR_ACCESS		~~0 -> 1~~Not barred -> Barred

Step f-g:

Parameter	**Unit**	**Cell 1 (GSM)**
RF Signal Level	dBm	-50 -> -80 (4sec) -> -50
C1*	dBm	20 -> -10 (4sec) -> 20

Step h:

Parameter	**Unit**	**Cell 1 (GSM)**
RF Signal Level	dBm	-50 -> -80
C1*	dBm	20 -> -10

Test procedure

Method B is applied.

a) The SS activates cells 1, 2, and 3. The SS monitors cells 1, 2 and 3 for random access requests from the UE.

b) The UE is switched on.

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

d) The SS sets Cell 1 to be barred.

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

f) The ~~stored information cell selection list in the UE is deleted and the~~ UE is switched off.

g) Step a-e) is repeated except that in step d), the SS reduces signal level on Cell 1 to –80 dBm for 4 s and then raises the level back to –50 dBm (C1 becomes –10 dBm during this period).

h) The SS reduces signal level on Cell 1 to –80 dBm.

6.2.2.2.5 Test Requirements

1) In step c), 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 2.

3) In step g), there shall be no access on Cell 2 within 30 s, after having reduced the signal level on Cell 1.

4) In step h), the UE shall respond on Cell 2.

6.2.2.3 Cell reselection timings; GSM to UTRAN

6.2.2.3.1 Definition

Test to verify that the UE meets the cell reselection timing requirements when both a GSM and UTRAN network is available.

6.2.2.3.2 Conformance requirement

1. If the 3G Cell Reselection list (see TS 04.18) includes UTRAN frequencies, the MS shall, at least every 5 s update the value RLA_C for the serving cell and each of the at least 6 strongest non-serving GSM cells.

   1.1 The MS shall then reselect a suitable UTRAN cell if its measured RSCP value exceeds the value of RLA_C for the serving cell and all of the suitable non-serving GSM cells by the value XXX_Qoffset for a period of 5 s and, for FDD, the UTRAN cells measured Ec/No value is equal or greater than the value FDD_Qmin.

   - Ec/No and RSCP are the measured quantities.
   - FDD_Qmin and XXX_Qoffset are broadcast on BCCH of the serving cell. XXX indicates other radio access technology/mode.

   1.2 In case of a cell reselection occurring within the previous 15 s, XXX_Qoffset is increased by 5 dB.

   1.3 Cell reselection to UTRAN shall not occur within 5 s after the MS has reselected a GSM cell from an UTRAN cell if a suitable GSM cell can be found.

   1.4 If more than one UTRAN cell fulfils the above criteria, the UE shall select the cell with the greatest RSCP value.

2. The MS shall be able to identify and select a new best UTRAN cell on a frequency, which is part of the 3G Cell Reselection list, within 30 s after it has been activated under the condition that there is only one UTRAN frequency in the list and under good radio conditions.

   The allowed time is increased by 30 s for each additional UTRAN frequency in the 3G Cell Reselection list. However, multiple UTRAN cells on the same frequency in the neighbour cell list does not increase the allowed time.

NOTE: Definitions of measurements are in TS 25.215 and TS 25.101 for FDD mode, in TS 25.225 and TS 25.102 for TDD mode, clause 3.2 and TS 05.08, clause 6.1.

References

1. TS 05.08, clause 6.6.5.
2. TS 05.08, clause 6.6.4.

6.2.2.3.3 Test purpose

1. To verify that:

    1.1 The UE meets conformance requirement 1.1 and additionally, that no reselection is performed if the period is less than 5 s

    1.2 The UE meets conformance requirement 1.2.

    1.3 The UE meets conformance requirement 1.3.

6.2.2.3.4 Method of test

Initial conditions

~~The USIM does not contain any preferred RAT.~~

The 3G Neighbour Cell Description of Cell 1 (GSM) refers Cell 2 (UTRAN) and Cell 3 (UTRAN).

The Inter-RAT Cell Info List of Cell 2 (UTRAN) and Cell 3 (UTRAN) refers to Cell 1 (GSM).

Step a-c:

Parameter	**Unit**	**Cell 1 (GSM)**	**Cell 2 (GSM)**
Test Channel		1	2
RF Signal Level	dBm	-70	-85
RXLEV_ACCESS_MIN	dBm	-100	-100
MS_TXPWR_MAX_CCH	dBm	Max. output power of UE	Max. output power of UE
FDD_Qmin	dBm	-20	-20
FDD_Qoffset	dBm	5	5

Parameter	**Unit**	**Cell 3 (UTRAN)**
Test Channel		1
CPICH_RSCP (FDD)	dBm	-74
P-CCPCH_RSCP (TDD)	dBm	-63
Qrxlevmin	dBm	-100
Srxlev*	dBm	26

Step d-g:

Parameter	**Unit**	**Cell 1 (GSM)**	**Cell 2 (GSM)**
RF Signal Level	dBm	-70 -> -82 (4 s) -> -70	OFF

Step h-j:

Parameter	**Unit**	**Cell 1 (GSM)**	**Cell 2 (GSM)**
RF Signal Level	dBm	-82 -> -70	OFF

Step k-m:

Parameter	Unit	Cell 1 (GSM)	Cell 2 (GSM)
RF Signal Level	dBm	-82 -> -70 -> -82	OFF

Test procedure

NOTE: Step a-c): Test purpose 1.3. Step d-g): test purpose 1.1. Step h-k): test purpose 1.2.

Method ~~A~~ B is applied.

a) The SS activates the channels. The UE is not paged on any of the cells.

b) The UE is switched on.

c) After 50 s, the SS starts paging continuously on cells 1 and 3 for 20 s. The SS monitors cells 1 and 3 for random access requests from the UE.

d) Cell 2 is switched off. The SS stops paging on the cells and waits for 20 s. (The UE should revert to Cell 1 due to cell reselection).

e) The SS starts paging continuously on Cell 3.

f) The SS decreases the transmit level of Cell 1 to –82 dBm for a period of 4 s (RSCP will then exceed ~~RXLEV~~ RLA_C value of Cell 1 by more than XXX_Qoffset) and then changes the level back to –70 dBm.

g) The SS waits to see if there is any random access requests from the UE on Cell 3.

h) The SS stops paging on all cells and sets the transmit level of Cell 1 to –82 dBm.

i) The SS waits 20 s and then starts paging continously on Cell 1. (The UE should revert to Cell 3 due to cell reselection).

j) The SS increases the transmit level of Cell 1 to –70 dBm and waits for the UE to access on Cell 1. The SS records the time t from the increase in the level of Cell 1 to the first response from the UE.

k) The SS stops paging on all cells and sets the transmit level of Cell 1 back to –82 dBm.

l) The SS waits 20 s (The UE should revert to Cell 3 due to cell reselection).

m) The SS increases the transmit level of Cell 1 to –70 dBm. After t+2 s (i.e. 2 s after reselection to Cell 1), the SS starts paging continuously on Cell 3, changes the level of Cell 1 back to –82 dBm and waits to see if there is any random access request on Cell 3. (Within 15 sec after reselection to GSM, the level of Cell 1 is -82 + 10 dBm=-72 dBm. After the 15 s period, the level of Cell 1 is –82 + 5 dBm=-77 dBm. The level of Cell 3 is –74 dBm, thus leading to reselection to Cell 3 after 15 s).

6.2.2.3.5 Test Requirements

1) In step c), after the UE has reselected Cell 1 from Cell 3 as indicated by random access requests, any random access requests on Cell 3 shall not occur within 4,5 s of the last random access request on Cell 1.

2) In step g), there shall be no access on Cell 3 within 34 s of decreasing the level of Cell 1.

3) In step j), the UE shall respond on Cell 1.

4) In step m), there shall be no response on Cell 3 within 11 s after the level of Cell 1 is changed back to -82 dBm.

NOTE: The 11 s is derived from (t+15) s minimum cell reselection timer minus (t+2) s from the start of step m) up to the decrease of the level of Cell 1. A further 2 s are subtracted to cover for any uncertainty introduced by the random access process occurring after step g).

3GPP TSG-T1 Meeting #16
Yokohama, Japan, 29 July – 31 July 2002

Tdoc ⌘T1-020531
(T1S020511)

CR-Form-v7

CHANGE REQUEST

⌘	**TS 34.123-1**	**CR**	**275**	⌘ **rev**	**-**	⌘	Current version:	**5.0.1**	⌘

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 of package 2 test case in clause 8.3.1.4, SS cell update waiting timer			
Source:	⌘	Vodafone Group			
Work item code:	⌘	TEI	***Date:***	⌘	30/07/2002
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 duration of the test case in clause 8.3.1.4 is impractical (more than 720 minutes). It is proposed that the SS shall only wait for 60 minutes (instead of 720) to verify that the UE does not perform a periodic cell update when T305 is set to "infinity".
Summary of change:	⌘	In step 9 of the expected sequence, the SS shall only wait for 60 minutes (instead of 720) to verify that the UE does not perform a periodic cell update when T305 is set to "infinity".
Consequences if not approved:	⌘	The test duration would be unacceptable (12 hours).

Clauses affected:	⌘	8.3.1.4				
		Y	**N**			
Other specs affected:	⌘	☐	☐	Other core specifications	⌘	
		☐	☐	Test specifications		
		☐	☐	O&M Specifications		
Other comments:	⌘	Affects R'99, REL-4 and REL-5				

8.3.1.4 Cell Update: periodical cell update in CELL_PCH

8.3.1.4.1 Definition

8.3.1.4.2 Conformance requirement

This procedure is to update UTRAN with the information of the current cell when the UE detects that it is still in the service area, while residing in the CELL_PCH state, after the expiry of timer T305.

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.4.3 Test purpose

To confirm that the UE, in CELL_PCH state, executes a cell update procedure after the expiry of timer T305.

8.3.1.4.4 Method of test

Initial Condition

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

UE: CELL_PCH (state 6-12) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.4

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	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.3.1.4 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE starts from CELL_PCH state. When the UE detects the expiry of periodic cell updating timer T305 according to the system information, the UE moves to CELL_FACH state. It shall transmit a CELL UPDATE message on the uplink CCCH and set the value "periodical cell update" into IE "Cell update cause". SS answers with a CELL UPDATE CONFIRM message. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "infinity", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM with IE "RRC state indicator" set to "CELL_PCH". Then UE shall enter CELL_PCH state. SS then monitors the uplink CCCH for a period of 60 minutes (ideally the SS should monitor this up to the maximum possible value for timer T305 (720 minutes), but for practical reasons 60 minutes (twice default timer of 30 minutes) is regarded as being sufficient) and verifies that no CELL_UPDATE message is received. SS then configures its downlink transmission power settings according to columns "T0" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 1 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. Next, SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "5", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM with IE "RRC state indicator" set to "CELL_PCH". Then UE shall enter CELL_PCH state. After T305 expires, UE shall transmit CELL UPDATE message with IE "cell update cause" set to "periodical cell update". SS shall transmit CELL UPDATE CONFIRM message to end the procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_PCH state. SS waits until T305 has expired. Wait for CELL UPDATE message and then verify that the time of arrival of this message is in the range of T305 value +/- 10 % after it entered CELL_PCH state
2	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "periodical cell update".
3	←		CELL UPDATE CONFIRM	
3a	→		UTRAN MOBILITY INFORMATION CONFIRM	
4	←		UTRAN MOBILITY INFORMATION	IE "T305" is set to 'infintiy'.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	
6				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.4.
7	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
8	←		CELL UPDATE CONFIRM	UE enters CELL_PCH state after transmitting this message.
9				SS waits for ~~720~~ 60 minutes and checks that no CELL UPDATE message is transmitted on uplink PRACH channel.

Step	Direction		Message	Comment
	UE	SS		
10				SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.4.
11	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
12	←		CELL UPDATE CONFIRM	
12a	→		UTRAN MOBILITY INFORMATION CONFIRM	
13	←		UTRAN MOBILITY INFORMATION	IE "T305" is set to '5'.
14	→		UTRAN MOBILITY INFORMATION CONFIRM	
15				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.4.
16	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
17	←		CELL UPDATE CONFIRM	UE enters CELL_PCH state after transmitting this message.
18				SS wait for T305 timer to expire
19	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell update".
20	←		CELL UPDATE CONFIRM	

Specific Message Contents

CELL UPDATE (Step 2 and 19)

The same message found in Annex A 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'
Cell Update Cause	Check to see if set to 'periodical cell updating'

CELL UPDATE (Step 7, 11 and 16)

The same message found in Annex A 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'
Cell Update Cause	Check to see if set to "cell reselection"

CELL UPDATE CONFIRM (Step 20)

Use the same message sub-type found in Annex A.

CELL UPDATE CONFIRM (Step 3 and 12)

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

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

CELL UPDATE CONFIRM (Step 8 and 17)

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

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

UTRAN MOBILITY INFORMATION (Step 4 and 13)

Use the same message sub-type found in Annex A, 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	
- T305	Set to 'infinity' in step 4 and '5' in step 13

8.3.1.4.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, it shall then move to CELL_FACH state and transmits a CELL UPDATE message with the IE "Cell update cause" set to "periodical cell update".

After step 3, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 4, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

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

After step 8 and before step 10, the UE shall not transmit any CELL UPDATE messages.

After step 10, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 12, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 13, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 15, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 18 the UE shall transmit a CELL UPDATE message stating the cell update cause to be periodic updating.

3GPP TSG- T1 Meeting #16
Yokohama, Japan, 2nd Aug 2002

T1-020532

3GPP TSG- T1 SIG Meeting #24
Yokohama, Japan, 29th – 31st July 2002

T1S-020525
(Revision of T1S-020506)

CR-Form-v6.1

CHANGE REQUEST

⌘ **TS 34.123-1 CR 276** ⌘ **rev -** ⌘ Current version: **5.0.1** ⌘

Spec Title: User Equipment (UE) conformance specification;
Part 1: Protocol conformance specification ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title: ⌘	Corrections to package1 test cases in clause 8.3		
Source: ⌘	Panasonic, Vodafone Group		
Work item code: ⌘	TEI	***Date:*** ⌘	31/7/2002
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)*

Reason for change: ⌘

1. Update Conformance Requirement according to core specification 25.331.
2. Editorial changes.
3. In clause 8.3.4.3, transition from T3 to T4 will not trigger a radio link failure. It takes at least 160ms to determine if the link is broken, but it will only take a minimum of 40 ms to detect a link.
4. The duration of the test case in clause 8.3.1.3 is impractical (more than 720 minutes). It is proposed that the SS shall only wait for 60 minutes (instead of 720) to verify that the UE does not perform a periodic cell update when T305 is set to "infinity".

Modification to T1S-020506

1. The test step 12-15 in clause 8.3.4.2 should not be removed because it is required to test that the UE removed the cell info of Cell 1 after step 7.
2. Editorial correction.

Summary of change: ⌘

In clause 8.3.1.1

- Conformance Requirement and Test Purpose are updated.
- Editorial correction to the specific message of CELL UPDATE CONFIRM message in step 8 and k=1.

In clause 8.3.1.3

- Conformance Requirement and Test Purpose are updated.
- References are added.
- In step 13 of the expected sequence, the SS shall only wait for 60 minutes (instead of 720) to verify that the UE does not perform a periodic cell update when T305 is set to "infinity".

In clause 8.3.3.1
- Conformance Requirement and Test Purpose are updated.
- References are added.

In clause 8.3.4.1
- Conformance Requirement and Test Purpose are updated.

In clause 8.3.4.2
- Conformance Requirement and Test Purpose are updated.
- ~~Step 12-15 are removed, as the test purpose has been covered in clause 8.3.1.18.~~

In clause 8.3.4.3
- Conformance Requirement and Test Purpose are updated.
- Step 9-11 are replaced by UE capability enquiry procedure, and UE can respond to this message through cell 1.

Consequences if not approved:	⌘	The test prose cannot test UE correctly, test duration is unaccaptable.

Clauses affected:	⌘	8.3.1.1, 8.3.1.3, 8.3.3.1, 8.3.4.1, 8.3.4.2, 8.3.4.3		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ 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/3G_Specs/CRs.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.

8.3.1.1 Cell Update: cell reselection in CELL_FACH

8.3.1.1.1 Definition

8.3.1.1.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

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".

…

When initiating cell update procedure, the UE shall:

1> stop timer T305;

1> if the UE is in CELL_DCH state:

…

…

1> move to CELL_FACH state, if not already in that state;

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.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in TS 25.331 subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

1> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:

…

1> if the value of the variable FAILURE_INDICATOR is TRUE:

…

…

When the UE receives a CELL UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

- if the message is received on DCCH:

the UE shall:

1> stop timer T302;

1> in case of a cell update procedure and the CELL UPDATE CONFIRM message:

2> includes "RB information elements"; and/or

2> includes "Transport channel information elements"; and/or

2> includes "Physical channel information elements"; and

2> if the variable ORDERED_RECONFIGURATION is set to FALSE:

3> set the variable ORDERED_RECONFIGURATION to TRUE.

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

…

2> perform the physical layer synchronisation procedure as specified in TS 25.214;

…

…

1> enter a state according to subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

…

If the UE after state transition remains in CELL_FACH state, it shall

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

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

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

2> ignore that IE and stop using DRX.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

…

the UE shall:

…

1> in case of a cell update procedure:

2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

2> clear that entry.

…

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

…

If the CELL UPDATE CONFIRM message:

- includes the IE "RB information to release list":

the UE shall:

1> transmit a RADIO BEARER RELEASE COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include the IE "RB information to release list"; and

- includes the IE "RB information to reconfigure list"; or

- includes the IE "RB information to be affected list":

the UE shall:

1> transmit a RADIO BEARER RECONFIGURATION COMPLETE as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and

- includes "Transport channel information elements":

the UE shall:

1> transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE as response message using AM RLC.

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.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

If the new state is CELL_FACH, the response message shall be transmitted using the new configuration after the state transition., and the UE shall:

…

1> if the variable PDCP_SN_INFO is empty:

…

2> if the CELL UPDATE CONFIRM or URA UPDATE CONFIRM message did not contain the IE "Ciphering mode info":

3> when RLC has been requested to transmit the response message,

4> continue with the remainder of the procedure.

…

If any or several of the following conditions are true:

…;

- reselection to another UTRA cell (including the previously serving cell) before completion of the cell update or URA update procedure;

the UE shall:

1> stop T302 if it is running;

…

1> check whether it is still in "in service area";

…

1> in case of a cell update procedure:

2> clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

1> if V302 is equal to or smaller than N302, the UE shall:

2> if the UE performed cell re-selection:

3> delete its C-RNTI.

2> in case of a cell update procedure:

3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> 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, the UE shall:

…

~~This procedure is used to update UTRAN with the current cell of the UE after it has performed a cell reselection in CELL_FACH state.~~

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.1.3 Test purpose

1. To confirm that the UE executes a cell update procedure after the successful reselection of another UTRA cell.
2. To confirm that the UE sends the correct uplink response message when executing cell update procedure due to cell reselection.

8.3.1.1.4 Method of test

Initial Condition

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

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.1

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	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.3.1.1 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. SS switches the power settings repeatedly between columns "T1" and "T0", whenever the description below specifies that the transmission power settings for cell 1 and cell 2 be reversed.

The UE is in the CELL_FACH state, camping onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. The UE shall find cell 2 to be more suitable for service and hence perform a cell reselection. After the completion of cell reselection, the UE shall transmits 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_FACH", to the UE on the downlink DCCH. UE shall verify that IE "New C-RNTI" is not included in the downlink message and shall send a CELL UPDATE message to SS again. SS shall then send a CELL UPDATE CONFIRM message which includes a valid IE "New C-RNTI". SS verifies that the UE send UTRAN MOBILITY INFORMATION CONFIRM message.. UE shall stay in CELL_FACH state. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with CELL UPDATE CONFIRM message and allocates new C-RNTI and U-RNTI identities to the UE. The IE "RRC State Indicator" is set to "CELL_FACH" in this message. The UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. Following this, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. The UE shall initiate a cell update procedure by transmitting a CELL UPDATE message and stating the cause as 'cell re-selection'. SS replies with a CELL UPDATE CONFIRM message which contains IE "Physical channel information elements". The UE shall send PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to acknowledge the change in physical resources. Then, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with a CELL UPDATE CONFIRM message which contains IE "Transport channel information elements". The UE shall send TRANSPORT CHANNEL RECONFIGURATION COMPLETE message. Following this, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 2. SS replies with a CELL UPDATE CONFIRM message which contains IE "RB information to be affected list". The UE shall send RADIO BEARER RECONFIGURATION COMPLETE message. Then, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS replies with a CELL UPDATE CONFIRM message which contains IE "RB information to release list". The UE shall send RADIO BEARER RELEASE COMPLETE message. Finally, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. The UE shall send a CELL UPDATE message on the uplink CCCH of cell 2. SS shall not respond to this message but SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.1. UE shall send a CELL UPDATE message on the uplink CCCH of cell 1. SS shall then send CELL UPDATE CONFIRM message to UE. UE shall reply with UTRAN MOBILITY INFORMATION CONFIRM 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				The UE is in the CELL_FACH state in cell 1
2			Void	SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.1. The UE shall find that the cell 2 is better for service and perform a reselection. SS waits for the maximum duration required for the UE to camp to cell 2.
3	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
4	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH". SS set k=0.
4a	→		CELL UPDATE	Value "cell reselection" shall be indicated in IE "Cell update cause"
4b	←		CELL UPDATE CONFIRM	See message content. SS set k=0.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	
6				SS reverses the transmission power level of cell 1 and cell 2.
7	→		CELL UPDATE	

8	←	CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_FACH". If k ≥ 0, new C-RNTI and U-RNTI identities are assigned to the UE. If k>0, IE "Physical channel information elements" is included in this message. If k>1, IE "Transport channel information elements" is included in this message. If k>2, IE "RB information to be affected list" is included in this message. If k>3, IE "RB information to release list" is included in this message. Increment k by 1.
9	→	UTRAN MOBILITY INFORMATION CONFIRM	If k=1 when SS received this message, go to step 6. Else test fails. If this message is not received, proceed to next step.
10	→	PHYSICAL CHANNEL RECONFIGURATION COMPLETE	If k=2 when SS received this message, go to step 6. Else test fails. If this message is not received, proceed to next step.
11	→	TRANSPORT CHANNEL RECONFIGURATION COMPLETE	If k=3 when SS received this message, go to step 6. Else test fails. If this message is not received, proceed to next step.
12	→	RADIO BEARER RECONFIGURATION COMPLETE	If k=4 when SS received this message, go to step 6. Else test fails. If this message is not received, proceed to next step.
13	→	RADIO BEARER RELEASE COMPLETE	If k=5 when SS received this message, proceed to next step. Else test fails. If this message is not received, test fails.
14			SS reverses the transmission power level of cell 1 and cell 2.
15	→	CELL UPDATE	
16			SS reverses the transmission power level of cell 1 and cell 2.
17	→	CELL UPDATE	
18	←	CELL UPDATE CONFIRM	
19	→	UTRAN MOBILITY INFORMATION CONFIRM	
20	←→	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

CELL UPDATE (Step 3, 7, 15 and 17)

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 - S-RNTI Cell Update Cause	 Check to see if set to '0000 0000 0001' In step 3, check to see if set to '0000 0000 0000 0000 0001'. In step 7 and when k<1, check to see if set to '0000 0000 0000 0000 0001'. In step 7 and when k>0, check to see if set to same string in IE "S-RNTI" in IE "New U-RNTI" of CELL UPDATE CONFIRM message in previous step 8. In step 15 and 17, check to see if set to same string in IE "S-RNTI" in IE "New U-RNTI" of CELL UPDATE CONFIRM message in previous step 8. Check to see if set to 'Cell Re-selection'

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 4b and 18)

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_FACH
New C-RNTI	'1010 1010 1010 1010'

CELL UPDATE CONFIRM (Step 8 and k = 0)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI - SRNC Identity - S-RNTI New C-RNTI	 '0000 0000 0001' An arbitrary 20-bits string which is different from original S-RNTI An arbitrary 16-bits string which is different from original C-RNTI assigned in RRC connection establishment procedure.

CELL UPDATE CONFIRM (Step 8 and k=1)

Use the same message sub-type found in step 8 and k=0, with the following exceptions:

Information Element	Value/remark
Maximum allowed uplink TX power	3 dB below the following value: Minimum of {33 dBm for FDD and 30 dBm for TDD, maximum uplink power allowed under the UE power class}

CELL UPDATE CONFIRM (Step 8 and k=2)

Use the same message sub-type found in step 8 and k=1, with the following exceptions:

Information Element	Value/remark
Added or Reconfigured uplink TrCH information	Same as the system information block type 5
Added or Reconfigured downlink TrCH information	Same as the system information block type 5

CELL UPDATE CONFIRM (Step 8 and k=3)

Use the same message sub-type found in step 8 and k=2, with the following exceptions:

Information Element	Value/remark
RB information to be reconfigure	
- RB identity	20
- PDCP info	Not Present
- PDCP SN info	Not Present
- RLC info	Not Present
- RB mapping info	Not Present
- RB stop/continue	Stop

CELL UPDATE CONFIRM (Step 8 and k=4)

Use the same message sub-type found in step 8 and k=3, with the following exceptions:

Information Element	Value/remark
RB information to release	
-RB identity	4

8.3.1.1.5 Test requirement

After step 2 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".

After step 3 the UE shall transmit CELL UPDATE message which sets the value "cell reselection" in IE "Cell update cause".

After step 4a, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message to acknowledge that it has started to use the new RNTI identities allocated.

After step 6 the UE shall sent a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

After step 8, if k=1, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message to acknowledge that it has started to use the new RNTI identities allocated.

If k=2, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the new physical channel assigned.

If k=3, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message to acknowledge that it has reconfigured the transport channels.

If k=4, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message to acknowledge that it has reconfigured the radio bearers.

If k=5, the UE shall transmit a RADIO BEARER RELEASE COMPLETE message to acknowledge that it has release its radio bearers.

After step 14 the UE shall transmit a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

After step 16 the UE shall transmit a CELL UPDATE message to the cell with stronger transmitting power, in order to indicate that a cell reselection has taken place.

After step 18, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message to acknowledge that it has started to use the new RNTI identities allocated.

8.3.1.3 Cell Update: periodical cell update in CELL_FACH

8.3.1.3.1 Definition

8.3.1.3.2 Conformance requirement

UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

…

1> Periodical cell update:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in TS 25.331 subclause 8.5.5.2 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

When initiating the cell update procedure, the UE shall:

1> stop timer T305;

…

1> move to CELL_FACH state, if not already in that state;

…

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.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in TS 25.331 subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

…

When the UE receives a CELL UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or
- if the message is received on DCCH:

the UE shall:

1> stop timer T302;

…

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

2> perform the physical layer synchronisation procedure as specified in TS 25.214;

1> enter a state according to TS 25.331 subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

If the UE after state transition remains in CELL_FACH state, it shall

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

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> not prohibit periodical status transmission in RLC;

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

2> ignore that IE and stop using DRX.

If the UE after the state transition remains in CELL_FACH state; and

- a C-RNTI is stored in the variable C_RNTI;

or

- the UE after the state transition moves to another state than the CELL_FACH state:

the UE shall:

1> in case of a cell update procedure:

  2> set the IE "RRC transaction identifier" in any response message transmitted below to the value of "RRC transaction identifier" in the entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS; and

  2> clear that entry.

1> transmit a response message as specified in TS 25.331 subclause 8.3.1.7;

1> in case of a cell update procedure:

  2> clear the entry for the CELL UPDATE CONFIRM message in the table "Rejected transactions" in the variable TRANSACTIONS.

1> set the variable CELL_UPDATE_STARTED to FALSE;

1> clear the variable SECURITY_MODIFICATION.

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

…

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in TS 25.331 subclause 8.6;

1> if the IE "UE Timers and constants in connected mode" is present:

  2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and

  2> for each updated timer value:

    3> start using the new value next time the timer is started;

  2> for each updated constant value:

    3> start using the new value directly;

1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION CONFIRM message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

…

~~This procedure is to update UTRAN with the current cell information, after the UE has remained in the service area in the CELL_FACH state for a period exceeding the timer value T305.~~

Reference

3GPP TS 25.331 clause 8.3.1, 8.3.3.3

8.3.1.3.3 Test purpose

1. To confirm that the UE executes a periodical cell update procedure following the expiry of timer T305.

8.3.1.3.4 Method of test

Initial Condition

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

UE: PS-DCCH+DTCH_FACH (state 6-11) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.3

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	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.3.1.3 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE is in CELL_FACH state. When the UE detects the expiry of timer T305 according to the settings in system information, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH with a cause indicating periodical cell updating. SS replies with a CELL UPDATE CONFIRM message, and IE "RRC State Indicator" is set to "CELL_FACH". SS verifies that the UE does not transmit any uplink message. SS then waits for T305 to expire again. The UE shall send another CELL UPDATE message to report periodic cell updating. After the SS receives this message, it transmits a CELL UPDATE CONFIRM message which includes the IEs "new C-RNTI", "new U-RNTI" to the UE on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. Next, SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "infinity", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.3, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. SS then monitors the uplink CCCH for a period of 60 minutes (ideally the SS should monitor this up to the maximum possible value for timer T305 (720 minutes), but for practical reasons 60 minutes (twice default timer of 30 minutes) is regarded as being sufficient) and verifies that no CELL_UPDATE message is received. After this, the SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to '5', to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.3, causing the UE to enter CELL_FACH state in cell 1 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. UE shall resume periodic cell updating procedure and transmit CELL_UPDATE message after T305 (5 minutes) expires.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1				The UE is in the CELL_FACH state. SS waits until T305 has expired.
2	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell updating"
3	←		CELL UPDATE CONFIRM	No RNTI identities are given. No information on PRACH and S-CCPCH are provided.
4				SS verifies that no uplink message is received from UE. SS waits for another period to allow T305 to expire.
5	→		CELL UPDATE	Set to "periodical cell update" in IE "Cell update cause" upon the expiry of timer T305.
6	←		CELL UPDATE CONFIRM	Including IEs "new C-RNTI", "new U-RNTI" and IE "RRC State Indicator" is set to "CELL_FACH"
7	→		UTRAN MOBILITY INFORMATION CONFIRM	

8	←	UTRAN MOBILITY INFORMATION	IE "T305" is set to 'infintiy'.
9	→	UTRAN MOBILITY INFORMATION CONFIRM	
10			SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.3
11	→	CELL UPDATE	IE "Cell update cause" shall be set to "cell reselection".
12	←	CELL UPDATE CONFIRM	
12a	→	UTRAN MOBILITY INFORMATION CONFIRM	
13			SS waits for ~~720~~ 60 minutes and checks that no CELL UPDATE message is transmitted on uplink PRACH channel.
14	←	UTRAN MOBILITY INFORMATION	IE "T305" is set to '5.
15	→	UTRAN MOBILITY INFORMATION CONFIRM	
16			SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.3
17	→	CELL UPDATE	IE "Cell update cause" shall be set to "cell reselection".
18	←	CELL UPDATE CONFIRM	
18a	→	UTRAN MOBILITY INFORMATION CONFIRM	
19	→	CELL UPDATE	UE shall transmit this message with "cell update cause" set to "periodical cell updating" after T305 expires.
20	←	CELL UPDATE CONFIRM	

Specific Message Contents

CELL UPDATE (Step 2 and 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 0001'
Cell Update Cause	Check to see if set to 'periodical cell updating'

CELL UPDATE (Step 11 and 17)

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 same bit string as in IE "S-RNTI" in IE "U-RNTI" of the CELL UPDATE CONFIRM message sent in step 6.
Cell Update Cause	Check to see if set to "cell reselection"

CELL UPDATE CONFIRM (Step 3, 12, 18 and 20)

Use the same message sub-type found in TS 34.108, clause 9.

CELL UPDATE CONFIRM (Step 6, 12 and 18)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	Set to '0000 0000 0001'
- S-RNTI	Set to an arbitrary string different from '0000 0000 0000 0000 0001'
New C-RNTI	'1010 1010 1010 1010'

CELL UPDATE (Step 19)

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 same bit string as in IE "S-RNTI" in IE "U-RNTI" of the CELL UPDATE CONFIRM message sent in step 6.
Cell Update Cause	Check to see if set to 'periodical cell updating'

UTRAN MOBILITY INFORMATION (Step 8)

Use the same message sub-type found in TS 34.108, clause 9, 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	
- T305	infinity

UTRAN MOBILITY INFORMATION (Step 14)

Use the same message sub-type found in TS 34.108, clause 9, 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	
- T305	5

8.3.1.3.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305 and then transmits a CELL UPDATE message setting value "periodical cell update" into IE "Cell update cause".

After step 3 the UE shall not send any uplink message as a response to CELL UPDATE CONFIRM message sent in step 3.

After step 4 the UE shall send a CELL UPDATE message, specifying the cell updating cause to be "periodical cell update".

After step 6 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

After step 8, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 10, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 12, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

Between step 12a and 14, the UE shall not transmit any CELL UPDATE message.

After step 14, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 16, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 18, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 18a, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "periodical cell update" on the uplink CCCH.

8.3.3.1 UTRAN Mobility Information: Success

8.3.3.1.1 Definition

8.3.3.1.2 Conformance requirement

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in TS 25.331 subclause 8.6;

…

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

….

If the IE "New U-RNTI" is included in a received message, the UE shall:

1> store the value in the variable U_RNTI, replacing any old stored value.

…

If the IE "New C-RNTI" is included, the UE shall:

1> store the value in the variable C_RNTI, replacing any old stored value;

1> use that C-RNTI when using common transport channels of type RACH, FACH and CPCH in the current cell.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

…

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

…

~~This procedure is used by the network to assign a new RNTI identity to the UE. It is initiated by the UTRAN when it sends a UTRAN MOBILITY INFORMATION message, which includes a new C-RNTI and/or U-RNTI on the downlink DCCH. The UE starts to use the new identities and transmits an UTRAN MOBILITY INFORMATION CONFIRM message to the UTRAN on the uplink DCCH.~~

Reference

3GPP TS 25.331 clauses 8.3.3, 8.6.3.9 ~~and~~ 8.6.3.10, 8.3.1.3

8.3.3.1.3 Test purpose

1. To confirm that the UE starts to use the new identities after it receives a UTRAN MOBILITY INFORMATION message from the SS.

8.3.3.1.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Initially, the UE is in CELL_FACH state and it has been assigned a C-RNTI and U-RNTI. The SS transmits an UTRAN MOBILITY INFORMATION message which includes new C-RNTI and U-RNTI to the UE. Then the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message using the assigned new C-RNTI in MAC header as confirmation. SS waits for UE to perform periodic cell updating. When SS received a CELL UPDATE message, SS checks that UE uses the new U-RNTI in the CELL UPDATE message. Then SS sends CELL UPDATE CONFIRM. SS waits for UE to perform periodic cell updating. When SS received a CELL UPDATE message, SS sends CELL UPDATE CONFIRM to end the test procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The initial state of the UE is CELL_FACH state. UE has been allocated both C-RNTI and U-RNTI during RRC connection establishment phase.
2	←		UTRAN MOBILITY INFORMATION	Contains new C-RNTI and U-RNTI identities and a value for T305 that is different from the value defined in the system information.
3	→		UTRAN MOBILITY INFORMATION CONFIRM	The assigned new C-RNTI shall be included in MAC header.
4				SS wait for T305 (same as the value defined in system information) to expire.
5	→		CELL UPDATE	UE shall trigger cell updating. The message shall indicate the same U-RNTI assigned in the UTRAN MOBILITY INFORMATION message in step 2.
6	←		CELL UPDATE CONFIRM	
7				SS wait for T305 (the new value as specified in step 2) to expire.
8	→		CELL UPDATE	UE shall trigger cell updating. The message shall indicate the same U-RNTI assigned in the UTRAN MOBILITY INFORMATION message in step 2.
9	←		CELL UPDATE CONFIRM	

Specific Message Content

UTRAN MOBILITY INFORMATION (Step 2)

Use the same message sub-type as in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
New U-RNTI	
- SRNC Identity	'0000 0000 0001'
- S-RNTI	'0101 0101 0101 0101 0101'
New C-RNTI	'1010 1010 1010 1010'
UE Timers and constants in connected mode	
- T305	5 minutes

UTRAN MOBILITY INFORMATION CONFIRM (Step 3)

Only the message type IE is checked in this message.

CELL UPDATE (Step 5 and 8)

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 '0101 0101 0101 0101 0101'
Cell Update Cause	Check to see if set to 'periodical cell updating'

CELL UPDATE CONFIRM (Step 6 and 9)

Use the same message sub-type as in TS 34.108, clause 9.

8.3.3.1.5 Test requirement

After step 2 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH that using the assigned new C-RNTI in MAC header.

After step 4 and 7 the UE shall transmit a CELL UPDATE message on the uplink CCCH with IE "Cell update cause" set to "periodical cell updating". The IE "U-RNTI" shall be identical to the IE "New RNTI" found in UTRAN MOBILITY INFORMATION message sent by the SS in step 2.

8.3.4.1 Active set update in soft handover: Radio Link addition

8.3.4.1.1 Definition

8.3.4.1.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following. The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> perform the physical layer synchronisation procedure as specified in TS 25.214;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the Physical Layer synchronization;

…

~~Radio link addition is triggered in the network's RRC layer. The RRC entity in the network first configures the new radio link. Transmission and reception then begin immediately. This procedure is to update the active set of the connection between the UE and UTRAN. The UTRAN then transmits an ACTIVE SET UPDATE message to the UE. The UE configures layer 1 to begin reception for the additional radio link. An ACTIVE SET UPDATE COMPLETE message is sent to the UTRAN without waiting for the Physical Layer synchronization..~~

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.1.3 Test purpose

1. To confirm that the UE continues to communicate with the SS on both the additional radio link and an already existing radio link after the radio link addition.

8.3.4.1.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and 2 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 8.3.4.1

Parameter	**Unit**	**Cell 1**				**Cell 2**			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Ch. 1				Ch. 1			
CPICH Ec	dBm/ 3.84 MHz	-60	-60	OFF	-60	-75	-60	-60	OFF

Table 8.3.4.1 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

Initially, the UE goes to connected mode and establishes a radio access bearer in CELL_DCH state in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.1. 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. 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 an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID).

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 without waiting for the physical channel synchronisation.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.1. UE shall not detect the DPCH from cell 1 but continue to communicate through the another DPCH from cell 2. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 1.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 2. The UE shall transmit a UE CAPABILITY ENQUIRY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.1. UE shall detect DPCH from cell 1 and 2 and transmit a MEASUREMENT REPORT message which indicates the event '1a' for cell 1.

The SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.1. UE shall not detect the DPCH from cell 2 but continue to communicate through another DPCH from cell 1. The UE shall transmit a MEASUREMENT REPORT message which indicates the event '1b' for cell 2.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 1. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message. 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 8.3.4.1.
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID in cell 2)
4	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2, without interfering with existing connections on the radio link in cell 1.
5				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.1
5a	→		MEASUREMENT REPORT	See specific message contents for this message

6	←	UE CAPABILITY ENQUIRY	Use default message.
7	→	UE CAPABILITY INFORMATION	Use default message.
8	←	UE CAPABILITY INFORMATION CONFIRM	Use default message.
9			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.1
9a	→	MEASUREMENT REPORT	See specific message contents for this message
10			Wait 15 seconds and SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.1
10a	→	MEASUREMENT REPORT	See specific message contents for this message
11	←	UE CAPABILITY ENQUIRY	Use default message.
12	→	UE CAPABILITY INFORMATION	Use default message.
13	←	UE CAPABILITY INFORMATION CONFIRM	Use default message.
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 Content

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exceptions:

- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0dB
- 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 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0dB
- 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 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2 shall be in accordance with the detault SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- 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.
- 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
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)

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	Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108
- 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	Not Present
- 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

MEASUREMENT REPORT (Step 5a)

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- 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.
- 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 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 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	1b
- Cell measurement event results	
- 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

MEASUREMENT REPORT (Step 9a)

The received message at this step should have the same contents as the message received in Step 6, with the following exceptions:

Information Element	Value/remark
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.1 (FDD)" in clause 6.1 of TS 34.108

MEASUREMENT REPORT (Step 10a)

The received message at this step should have the same contents as the message received in Step 6, with the following exceptions:

Information Element	Value/remark
Event results - Intra-frequency measurement event results - Intra-frequency event identity - Cell measurement event results - Primary CPICH info - Primary scrambling code	 1b Refer to clause titled "Default settings for cell No.2 (FDD)" in clause 6.1 of TS 34.108

8.3.4.1.5 Test requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set additional procedure.

After step 5a the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 9a the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 10a the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 11 the UE shall transmit a UE CAPABILITY INFORMATION message.

8.3.4.2 Active set update in soft handover: Radio Link removal

8.3.4.2.1 Definition

8.3.4.2.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following. The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

1> perform the physical layer synchronisation procedure as specified in TS 25.214;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the Physical Layer synchronization;

…

~~This procedure is to update the active set of the connections between the UE and the UTRAN after the UTRAN has commanded a removal of a radio link from the current active set. The UTRAN RRC transmits an ACTIVE SET UPDATE message to the UE RRC. The UE RRC requests UE L1 to terminate transmission and reception of the radio link to be removed. The UE shall continue to communicate normally with the UTRAN using the new active set, without losing the connection link. After this the UE acknowledges the radio link removal by sending an ACTIVE SET UPDATE COMPLETE message to the UTRAN on DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.2.3 Test purpose

1. To confirm that the UE continues to communicate with the SS on the remaining radio link after radio link removal on the active set.
2. To confirm that the UE is not using the removed radio link to communicate with the SS.

8.3.4.2.4 Method of test

Initial Condition

System Simulator: 2 cells - both Cell 1 and Cell 2 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 8.3.4.2

Parameter	**Unit**	**Cell 1**				**Cell 2**			
		T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Ch. 1				Ch. 1			
CPICH Ec	dBm/3. 84MHz	-60	-60	-75	-60	-75	-60	-60	OFF

Table 8.3.4.2 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

At the start of the test, the UE goes to connected mode and establishes a radio access bearer service in the CELL_DCH state in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.2. 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. 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 an ACTIVE SET UPDATE message in cell 1 on DCCH using AM RLC which includes the IE "Radio Link Addition Information" (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID).

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.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.2. UE shall transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 1 according to IE "Intra-frequency event identity", which is set to '1b' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS remove the radio link from cell 1 and then SS transmits an ACTIVE SET UPDATE message, which includes IE "Radio Link Removal Information" and specifying the P-CPICH information of the cell to be removed.

When the UE receives this message, the UE RRC entity shall request UE L1 entity to terminate transmission and reception of the radio link from cell 1. Then the UE transmits an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond this message through the DPCH in cell 2. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.2 so as to generate a radio link failure condition. The UE shall detect the radio link failure UE shall re-select to cell 1 and transmit a CELL UPDATE message. SS transmits a CELL UPDATE CONFIRM message after it receive CELL UPDATE message from UE. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities..

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.2
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	SS transmits this message in cell 1 on downlink DCCH using AM RLC. The message includes IE "Radio Link Addition Information". (e.g. Downlink DPCH information and other optional parameters relevant for the additional radio links with Primary CPICH info used for the reference ID in cell 2)
4	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link to cell 2, without interfering with existing connections on the radio link in cell 1.
5				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.2
6	→		MEASUREMENT REPORT	See specific message contents for this message
7	←		ACTIVE SET UPDATE	The SS transmits this message on downlink DCCH using AM RLC which includes IE "Radio Link Removal Information".
8	→		ACTIVE SET UPDATE COMPLETE	The UE shall remove the radio link associated with cell 1.
9	←		UE CAPABILITY ENQUIRY	Use default message.
10	→		UE CAPABILITY INFORMATION	Use default message.
11	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
12				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.2
13	→		CELL UPDATE	UE sends this message in cell 1.
14	←		CELL UPDATE CONFIRM	See message content.
15	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

The contents of SIB11 broadcasted in cell 1 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exceptions:

- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0dB
- 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 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0dB
- 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 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE

The contents of SIB12 in cell 1, and SIB11 and SIB12 in cell 2 shall be in accordance with the detault SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- 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.
- 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
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)

The message to be used in this test is defined in Annex.A, with the following exceptions:

Information Element	Value/remark
Radio link addition information	
- 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
- 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	Not Present
- 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

MEASUREMENT REPORT (Step 6)

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- 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.
- 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 list	
- 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	FDD
- 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 absent
- CHOICE mode	FDD
- 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	
- CHOICE event result	Intra-frequency measurement event results
- Intra-frequency event identity	1b
- Cell measurement event results	
- CHOICE mode	FDD
- 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

ACTIVE SET UPDATE (Step 7)

The message to be used in this test is the same as the message sub-type found in TS 34.108, clause 9, with the following exceptions:

Information Element	Value/remark
Radio link removal information	1 radio link to be removed
- Primary CPICH info	
- Primary scrambling code	Set to the same P-CPICH scrambling code assigned for cell 1

CELL UPDATE (Step 13)

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
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 14)

Use the same message sub-type found in TS 34.108, clause 9, with the following exceptions:

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

8.3.4.2.5 Test requirement

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC to acknowledge the completion of the active set additional procedure.

After step 5 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 7 the UE shall remove the radio link from cell 1 and it shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC.

After step 10 the UE shall transmit a UE CAPABILITY INFORMATION message.

After step 12 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "radio link failure".

After step 14, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

8.3.4.3 Active set update in soft handover: Combined radio link addition and removal

8.3.4.3.1 Definition

8.3.4.3.2 Conformance requirement

Upon reception of an ACTIVE SET UPDATE message the UE shall act upon all received information elements as specified in 8.6, unless specified otherwise in the following. The UE shall:

1> first add the RLs indicated in the IE "Radio Link Addition Information";

1> remove the RLs indicated in the IE "Radio Link Removal Information". If the UE active set is full or becomes full, an RL, which is included in the IE "Radio Link Removal Information" for removal, shall be removed before adding RL, which is included in the IE "Radio Link Addition Information" for addition;

1> perform the physical layer synchronisation procedure as specified in TS 25.214;

1> set the IE "RRC transaction identifier" in the ACTIVE SET UPDATE COMPLETE message to the value of "RRC transaction identifier" in the entry for the ACTIVE SET UPDATE message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH using AM RLC without waiting for the Physical Layer synchronization;

…

~~When radio links are to be replaced, the UTRAN RRC first configures the UTRAN L1 to activate the radio link(s) that are being added. The UTRAN RRC then transmits an ACTIVE SET UPDATE message to the UE RRC, which shall configure the UE L1 to terminate transmission and reception on the removed radio link(s) and begin transmission and~~

~~reception on the added radio link(s). At the completion of the reconfiguration of radio links, the UE shall acknowledge the replacement with an ACTIVE SET UPDATE COMPLETE message.~~

Reference

3GPP TS 25.331 clause 8.3.4

8.3.4.3.3 Test purpose

1. To confirm that the UE continues to communicate with the SS on the added radio link and removes radio link which exists prior to the execution of active set update procedure.

8.3.4.3.4 Method of test

Initial Condition

System Simulator: 3 cells- Cell 1, Cell 2 and Cell 3 are active, with downlink transmission power settings according to columns "T0" in table 8.3.4.3.

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 [Active set is not full.]

Test Procedure

Table 8.3.4.3

Parameter	**Unit**	**Cell 1**					**Cell 2**					**Cell 3**				
		T0	T1	T2	T3	T4	T0	T1	T2	T3	T4	T0	T1	T2	T3	T4
UTRA RF Channel Number		Ch. 1					Ch. 1					Ch. 1				
CPICH Ec	dBm/ 3.84 MHz	-60	-60	-60	OFF	-60	-80	-60	-60	OFF	-70	-80	-80	-60	-60	OFF

Table 8.3.4.3 illustrates the downlink power to be applied for the 3 cells at various time instants of the test execution.

The UE goes to connected mode and establishes a radio access bearer in the CELL_DCH state in cell 1.

SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.3. UE transmits 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. 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.

SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.3. UE shall be triggered to transmit a MEASUREMENT REPORT message which includes the primary scrambling code for cell 3 according to IE "Intra-frequency event identity", which is set to '1a' in the SYSTEM INFORMATION BLOCK TYPE 11. After the MEASUREMENT REPORT message is received, the SS configures the new radio link to be added from cell 3 and then the SS transmits to the UE an ACTIVE SET UPDATE message which includes IE "Radio Link Addition Information" and IE "Radio Link Removal Information", indicating the removal of cell 2 and addition of cell 3 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 and then the UE removes the radio link specified in an ACTIVE

SET UPDATE message. The UE shall transmit an ACTIVE SET UPDATE COMPLETE message to the SS on the uplink DCCH using AM RLC.

SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.3.

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond to this message through the DPCH in cell 3. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.3. ~~so as to generate a radio link failure condition. The UE shall detect the radio link failure. UE shall re-select to cell 1 and transmit a CELL UPDATE message. SS transmits a CELL UPDATE CONFIRM message after it receive CELL UPDATE message from UE. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities.~~

SS shall transmit a UE CAPABILITY ENQUIRY message to confirm that the UE can respond to this message through the DPCH in cell 1. The UE shall transmit a UE CAPABILITY INFORMATION message. Then SS transmits a UE CAPABILITY INFORMATION CONFIRM message.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
0a				SS configures the initial active set with only cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.4.3
0b	→		MEASUREMENT REPORT	See specific message contents for this message
0c	←		ACTIVE SET UPDATE	The SS transmit this message on downlink DCCH using AM RLC which includes IE "Radio Link Addition Information" for cell 2.
0d	→		ACTIVE SET UPDATE COMPLETE	The UE adds the radio link in cell 2.
1				SS configures its downlink transmission power settings according to columns "T2" in table 8.3.4.3
2	→		MEASUREMENT REPORT	See specific message contents for this message
3	←		ACTIVE SET UPDATE	The SS transmit this message on downlink DCCH using AM RLC which includes IE "Radio Link Addition Information" for cell 3 and IE "Radio Link Removal Information" for cell 2.
4	→		ACTIVE SET UPDATE COMPLETE	The UE shall configure a new radio link in cell 3 and removes the old radio link in cell 2.
4a				SS configures its downlink transmission power settings according to columns "T3" in table 8.3.4.3
5	←		UE CAPABILITY ENQUIRY	Use default message.
6	→		UE CAPABILITY INFORMATION	Use default message.
7	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.
8				SS configures its downlink transmission power settings according to columns "T4" in table 8.3.4.3
~~9~~	~~→~~		~~CELL UPDATE~~	
~~10~~	~~←~~		~~CELL UPDATE CONFIRM~~	~~See message content.~~
~~11~~	~~→~~		~~UTRAN MOBILITY INFORMATION CONFIRM~~	
9	←		UE CAPABILITY ENQUIRY	Use default message.
10	→		UE CAPABILITY INFORMATION	Use default message.
11	←		UE CAPABILITY INFORMATION CONFIRM	Use default message.

Specific Message Content

The contents of SIB11 broadcast- in cell 1 and cell 2 shall be in accordance with the default SIB11 as specified in section 6.1 of TS 34.108, with the following exception:

- New intra-frequency cells	
- Intra-frequency cell id	1
- Cell info	
- Cell individual offset	0dB
- 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 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Intra-frequency cell id	2
- Cell info	
- Cell individual offset	0dB
- 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 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE
- Intra-frequency cell id	3
- Cell info	
- Cell individual offset	0dB
- 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 of TS 34.108
- Primary CPICH TX power	Not Present
- TX Diversity indicator	FALSE

The contents of SIB12 in cell 1 and cell 2, and SIB11 and SIB12 in cell 23 shall be in accordance with the detault SIBs as specified in TS 34.108.

MEASUREMENT REPORT (Step 0b)

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- 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.
- 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.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.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	Checked that this IE is absent
- 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 0c)

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	Calculated value from Cell synchronisation information
- DPCH frame offset	

MEASUREMENT REPORT (Step 2)

Information Element	Value/remark
Message Type	
Integrity check info	The presence of this IE is dependent on IXIT statements in TS 34.123-2. If integrity protection is indicated to be active, this IE shall be present with the values of the sub IEs as stated below. Else, this IE and the sub-IEs shall be absent.
- 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.
- 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.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
- 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
Measured results on RACH	Checked that this IE is absent
Additional measured results	Checked that this IE is absent
Event results	Checked that this IE is absent
- 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.3 (FDD)" in clause 6.1 of TS 34.108

ACTIVE SET UPDATE (Step 3)

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 3
- 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	Not Present
- 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
Radio link removal information	
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as assigned for cell 2

~~CELL UPDATE (Step 9)~~

~~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~~
~~Cell Update Cause~~	~~"radio link failure"~~

~~CELL UPDATE CONFIRM (Step 10)~~

~~Use the same message sub-type found in clause 9 of TS 34.108, with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~New C-RNTI~~	~~'1010 1010 1010 1010'~~

8.3.4.3.5 Test requirement

At step 0a the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 0c the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 1 the UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH using AM RLC.

After step 3 the UE shall transmit an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH.

After step 5 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH in cell 3.

After step ~~8~~ 9 the UE shall transmit a UE CAPABILITY INFORMATION message on the uplink DCCH in cell 1. ~~CELL UPDATE message on the CCCH with IE "Cell update cause" set to "radio link failure".~~

~~After step 10, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.~~

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Yokohama, Japan, July 29 – Aug 2, 2002
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Yokohama, Japan, 29th- 31st July 2002

Tdoc T1-020533

Tdoc T1S-020533

CR-Form-v4

CHANGE REQUEST

⌘	**34.123-1**	**CR**	**277**	⌘	ev	**-**	⌘	Current version:	5.0.1 ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title: ⌘	CR to package2 clause 8.2 of TS34.123-1			
Source: ⌘	Panasonic, Ericsson			
Work item code: ⌘	TEI		***Date:*** ⌘	31 July 2002
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)*

Reason for change: ⌘

From T1S 020381

1. Update Conformance Requirement according to core specification 25.331.
2. Editorial changes.
3. Add generic procedure at the end of some test cases to verify the final state of the UE.
4. Add specific procedures, either before or after the actual testing, to verify that the UE continues with any ongoing processes and procedures as if the erroneous message has not been received.
5. In RADIO BEARER RECONFIGURATION message IE “Primary CPICH info” cannot be omitted because IE Downlink information per radio link list” is MP.

From T1S-020407, T1S-020408 and T1S-020410

The current test cases for the reconfiguration procedures do not always reflect the typical usage of these procedures. In TS 25.303, clause 5, there is a stage 2 description of how radio bearer control procedures are typically used. It says:

“Radio Bearer Reconfiguration: this procedure reconfigures parameters for a radio bearer (e.g. the signalling link) to reflect a change in QoS. It may include change of RLC parameters, change of multiplexing priority for DTCH/DCCH, CPCH Set assignment, change of DCH scheduling priority, change of TFS for DCH, change of TFCS, assignment or release of physical channel(s) and change of used transport channel types.”

"Transport Channel Reconfiguration: this procedure reconfigures parameters related to a transport channel such as the TFS. The procedure also assigns a TFCS and may change physical channel parameters to reflect a reconfiguration of a transport channel in use.
NOTE: It is expected that the configuration of TFS/TFCS needs to be done more seldom than the assignment of physical channel. A "pre-configuration" of TFS/TFCS of a transport channel not in use can be done by this procedure, to be used after transport channel type switching when the physical channel is assigned."

The UE typically received a TFS and TFCS for DCH when the radio bearer was established, which is stored and then used whenever in CELL_DCH state. The typical case is then that a Physical channel reconfiguration procedure is enough to make the state change from CELL_FACH and CELL_DCH and vice versa. If the UE shall apply another rate than covered by the stored configuration, the Transport channel reconfiguration is used to provide the parameters that need to be modified as compared to the stored values (this could be optionally be combined with a state change). The only case when the Radio bearer reconfiguration procedure is really necessary is the reconfiguration of RAB or RB information, such as RLC reconfiguration. Reconfiguration of RLC cannot be made by any other procedure, and this in some scenarios is necessary at transport channel type switching because of the different round trip delay for different channel configurations. We therefore propose that the radio bearer reconfiguration test cases include reconfiguration of RLC parameters.

Furthermore, in some areas the test cases are not fully aligned with the core specifications (25.331):

1. In several cases, information which is not really required is still included. This information is proposed to be removed.
2. Test case 8.2.6.15. is impossible to occur outside the test environment. Therefore this test cases is proposed to be removed.

Discussion is required on test case 8.2.6.16 regarding the feasibility of this test case in its current form. The same issue also applies for test cases 8.2.2.18 and 8.2.4.17.

Summary of change: ⌘

From T1S-020381

In clause 8.2.2.1
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.2.7
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.2.8
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.2.2.9
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.2.2.10

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.2.11

- Conformance Requirement and Reference are updated.
- Before step 1, SS sends 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.
- UE shall continue its periodical traffic volume measurement. After step 2, UE shall send MEASUREMENT REPORT back to SS. This is to verify that the UE “continues with any ongoing processes and procedures as if the reconfiguration message was not received”.

In clause 8.2.2.17

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.2.2.18

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.
- In step 1, IE “Primary Scrambling Code” in RADIO BEARER RECONFIGURATION message is set to ‘200’ so that cell update procedure can be triggered

In clause 8.2.2.19

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.2.20

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.2.23

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.4 to check that UE is in CELL_PCH at the end of test.

In clause 8.2.2.24

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.5 to check that UE is in URA_PCH at the end of test.

In clause 8.2.4.1

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.4.3

- Conformance Requirement and Reference are updated.
- Before step 1, SS sends 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.

- UE shall continue its periodical traffic volume measurement. After step 3, UE shall send MEASUREMENT REPORT back to SS. This is to verify that the UE “continues with any ongoing processes and procedures as if the reconfiguration message was not received”.

In clause 8.2.4.4
- Name of the test case is changed from “reversion failure” to “cell reselection”.
- Conformance Requirement and Reference are updated.
- Specific Message Contents of TRANSPORT CHANNEL RECONFIGURATION (Step 1) are modified so that the TFS is different from the current configuration.

In clause 8.2.4.7
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.2.4.9
- Conformance Requirement and Reference are updated.
-

In clause 8.2.4.10
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.4.16
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.2.4.17
- Conformance Requirement and Reference are updated.

In clause 8.2.4.21
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.5 to check that UE is in URA_PCH at the end of test.

In clause 8.2.6.1
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.6.7
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.2.6.8
- Conformance Requirement and Reference are updated.

In clause 8.2.6.9
- Conformance Requirement and Reference are updated.
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.2.6.15
- Conformance Requirement and Reference are updated.

- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.2.6.16

- Conformance Requirement and Reference are updated.

In clause 8.2.6.19

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.4 to check that UE is in CELL_PCH at the end of test.

In clause 8.2.6.20

- Conformance Requirement and Reference are updated.
- SS called generic procedure C.5 to check that UE is in URA_PCH at the end of test.

The modification is added in T1S-020357 as below with blue marker.

In clause 8.2.2.23

- In specific message contents, PAGING TYPE 1 message and CELL_UPDATE message are removed.

In clause 8.2.2.24

- After test requirement, the other test case's contents are included. Hence this was removed.(Cetecom comment)
- In specific message contents, PAGING TYPE 1 message and CELL_UPDATE message are removed.

In clause 8.2.4.1a

- This clause is moved to T1S-020469 since this is belonging to package 3.

In clause 8.2.4.21

- In specific message contents, PAGING TYPE 1 message and CELL_UPDATE message are removed.

In clause 8.2.6.19

- In specific message contents, PAGING TYPE 1 message is removed.

In clause 8.2.6.20

- In specific message contents, PAGING TYPE 1 message is removed.

From T1S-020407, T1S-020408 and T1S-020410

Radio Bearer Reconfiguration (8.2.2)

8.2.2.1: Radio bearer reconfiguration from CELL_DCH to CELL_DCH: Success
Reconfiguration of some RLC parameters has been added. To verify different kind of modifications, the test case includes two procedures. In the first procedure, transmission of periodical RLC STATUS is configured and it is verified that the UE correctly transmits those RLC STATUS PDUs. In the second procedure, this is turned off, which is verified as well.
In both procedures, specific RADIO BEARER RECONFIGURATION messages are used, and these do basically not include any transport channel or physical channel information elements since that is unnecessary (e.g. no state change is made). Moreover, change of U-RNTI and primary scrambling code has been added in the message used for the first procedure. A typical scenario when this will be used is after a handover from another RAT (such as GSM).

8.2.2.7: Radio bearer reconfiguration from CELL_DCH to CELL_DCH: Success (Continue and stop)
The RADIO BEARER RECONFIGURATION messages are modified, to not include transport channel or physical channel information elements since that is unnecessary (e.g. no state change is made). The IE “Maximum allowed UL TX power” is removed since the value is not changed.

8.2.2.8: Radio bearer reconfiguration from CELL_DCH to CELL_FACH: Success
Reconfiguration of RLC parameters has been added. Since the this procedure includes a state change, the typical reason to use a RADIO BEARER RECONFIGURATION message instead of e.g. PHYSICAL CHANNEL RECONFIGURATION would be to reconfigure RLC. The IE “Frequency Info” is removed since no change of frequency is made. Editorial correction is 8.2.2.8.5 (message name should be “RADIO BEARER RECONFIGURATION COMPLETE”). The IE “Maximum allowed UL TX power” is removed since the value is not changed.

8.2.2.9: Radio bearer reconfiguration from CELL_DCH to CELL_FACH: Success (Cell re-selection)
Reconfiguration of RLC parameters has been added. Since the this procedure includes a state change, the typical reason to use a RADIO BEARER RECONFIGURATION message instead of e.g. PHYSICAL CHANNEL RECONFIGURATION would be to reconfigure RLC. The IE “Frequency Info” is removed since no change of frequency is made. Assignment of “New C-RNTI” is added, since it should be included when Primary scrambling code is included. The IE “Maximum allowed UL TX power” is removed since the value is not changed.

8.2.2.10: Radio bearer reconfiguration from CELL_FACH to CELL_DCH: Success
Assignment of transport channel IEs are removed from the RADIO BEARER RECONFIGURATION message. This enables test coverage of the use of a stored TFS and TFCS configuration for DCH which was assigned in CELL_FACH state. Reconfiguration of RLC parameters has been added. Since the this procedure includes a state change, the typical reason to use a RADIO BEARER RECONFIGURATION message instead of e.g. PHYSICAL CHANNEL RECONFIGURATION would be to reconfigure RLC.

8.2.2.11: Radio bearer reconfiguration from CELL_FACH to CELL_DCH: Failure
This test case is removed. The failure case “Unsupported configuration” refers to situations when UTRAN instructs the UE that is not inline with the UE capabilities. Since these except in one very specific case (support of simultaneous reception of DPCH and SCCPCH) is not explicitly specified in the core spec 25.331 the outcome is somewhat unpredictable. And also, this would be a UE capability dependent test case.

8.2.2.17: Radio bearer reconfiguration from CELL_FACH to CELL_FACH: Success
Assignment of primary scrambling code in a target cell is removed. The test case is changed into a 1-cell environment. The reason is that in CELL_FACH state, UTRAN does not control the serving cell of the UE. Instead the UE perform cell reselection independently and it does not send any intra-frequency measurement reports while within the CELL_FACH state.Thus, such a strong timing relationship between the radio link conditions and the RRC signalling is not possible to achieve in practice (and letting UTRAN simply guess a possible cell reselection during a reconfiguration procedure is a remote case). Reconfiguration of RLC parameters has been added since that would be the reason to use this message. The IE “Frequency Info” is removed since no change of frequency is made. The IE “Maximum allowed UL TX power” is removed since the value is not changed.

8.2.2.18: Radio bearer reconfiguration from CELL_FACH to CELL_FACH: Success (Cell re-selection)
A recently agreed CR to 25.331 removed the use of activation time within CELL_FACH. As a result, the interaction between reconfiguration and cell re-

selection can not be tested as currently specified. An alternative means to test this interaction is discussed below for the test case 8.2.6.16 on physical channel reconfiguration. The proposal is to include the same principle as agreed for the physical channel reconfiguration.
Reconfiguration of RLC parameters has been added since that would be the reason to use this message. The IE “Frequency Info” is removed since no change of frequency is made. The IE “Maximum allowed UL TX power” is removed since the value is not changed.

8.2.2.19: Radio bearer reconfiguration from CELL_DCH to CELL_DCH: Success (Subsequently received)
Reconfiguration of RLC parameters has been added since that would be the reason to use this message. The two messages uses different RLC parameter settings. The message that the UE shall use configures periodical RLC STATUS PDU transmission, which is verified. The IE “Frequency Info” is removed since no change of frequency is made. The IE “Maximum allowed UL TX power” is removed since the value is not changed. The IE “Secondary scrambling code” is not part of the IE “Uplink DPCH info” (rather, it belongs to the IE “Downlink DPCH info for each RL”). However, if RLC parameters are included the IE is not necessary to distinguish between the two configurations so it is removed.

8.2.2.20: Radio bearer reconfiguration from CELL_FACH to CELL_DCH: Success (Subsequently received)
Reconfiguration of RLC parameters has been added since that would be the reason to use this message. The IE “Frequency Info” is removed since no change of frequency is made. The IE “Secondary scrambling code” is not part of the IE “Uplink DPCH info” (rather, it belongs to the IE “Downlink DPCH info for each RL”). The test procedure text is clarified.

8.2.2.23: Radio bearer reconfiguration from CELL_FACH to CELL_PCH: Success
Reconfiguration of RLC parameters has been added since that would be the reason to use this message. In CELL_PCH state, the UE shall prohibit periodical status transmission in RLC (I.e. this shall not cause cell update due to uplink data transmission). The test will cover that aspect by instructing the UE to start using periodical RLC STATUS PDU transmission at the state change to CELL_PCH state.The conformance requirement, test purpose and test requirement are updated with this. The IE “Frequency Info” is removed since no change of frequency is made. The IE “Maximum allowed UL TX power” is removed since the value is not changed.

8.2.2.24: Radio bearer reconfiguration from CELL_FACH to URA_PCH: Success
Same changes as in 8.2.2.23: Radio bearer reconfiguration from CELL_FACH to CELL_PCH: Success. The URA identity is added since if no URA identity is assigned, UTRAN will not know the URA location of the UE if there is just one URA id in the system information.

Transport channel reconfiguration (8.2.4)

General

- The need for IE “Frequency info” is MD and the IE not need be included if the frequency to be used is the same as the currently used one. It should be removed to avoid transmission of redundant information (efficiency)
- If the IE max_allowed_UL_TX_power includes is optional and the IE not need be included if the value to be used is the same as the currently used one. Since the IE is contained in System Information Block type 3, the value can not really be adjusted via dedicated messages when in CELL_FACH. The IE should be removed to avoid transmission of redundant information (efficiency)

Subclause 8.2.4.1

The test case is changed to cover a timing re- initialised hard handover with change in UL/DL TFS and TFCS, which is considered to be a more typical use case for the TrCH reconfiguration procedure. To only change scrambling code, one would normally use the PhyCH reconfiguration procedure (see TS 25.303).

- The reconfiguration message does not include all physical layer parameters to verify that the UE continues using the existing value for the parameters that are absent (UL DPCH power control info, DPC mode, DPCH compressed mode info)

Subclause 8.2.4.3

The test case is changed to cover a rate change including a change of SF, which is considered to be a more typical use case for the TrCH reconfiguration procedure. To only change scrambling code, one would normally use the PhyCH reconfiguration procedure (see TS 25.303).

- The reconfiguration message does not include all physical layer parameters to verify that the UE continues using the existing value for the parameters that are absent (UL DPCH power control info, DPC mode, DPCH compressed mode info)

Subclause 8.2.4.7

- One would normally use the PhyCH reconfiguration procedure to switch from CELL_DCH to CELL_FACH; there are no TrCH parameters to be modified (see TS 25.303). Normally the TrCH configuration to be used in CELL_FACH is provided on system information (SIB 5/ 6) in which it does not make sense to modify TrCH parameter via dedicated messages. Nevertheless, it is not forbidden to use the TrCH reconfiguration procedure for performing the channel switch. The suggestion is to either remove or downprioritise the TC.

Subclause 8.24.9

- One would normally use the PhyCH reconfiguration procedure to switch from CELL_DCH to CELL_FACH; there are no TrCH parameters to be modified (see TS 25.303). Normally the TrCH configuration to be used in CELL_FACH is provided on system information (SIB 5/ 6) in which it does not make sense to modify TrCH parameter via dedicated messages (the UE shall apply the system information configuration. Nevertheless, it is not forbidden to use the TrCH reconfiguration procedure for performing the channel switch. The suggestion is to either remove or downprioritise the TC.

Subclause 8.2.4.10

- The test case is changed to clarify that the UE reverts back to a previously used CELL_DCH configuration. As a result, SS does not provide the TFS for DCCH since they are the same as the stored ones. As compared to this previously stored configuration, the rate is changed (TFS for DTCH & TFCS) including a change of SF, which is considered to be a more typical use case for the TrCH reconfiguration procedure (see TS 25.303).
- The reconfiguration message does not include all physical layer parameters to verify that the UE continues using the existing value for the parameters that are absent (UL DPCH power control info, DPC mode, DPCH compressed mode info)

Subclause 8.2.4.16

- Normally the TrCH configuration to be used in CELL_FACH is provided on system information (SIB 5/ 6) in which it does not make sense to modify configuration via dedicated messages (the UE shall apply the system information configuration). Although it is not forbidden to use the TrCH reconfiguration procedure only to indicate a new CRNTI valid in another cell at a later point in time, this is considered to be an ackward network scenario. The suggestion is to either remove or downprioritise the TC.

- The test procedure has been changed to clarify that the radio link conditions trigger the cell reselection and not the reception of the TRANSPORT CHANNEL RECONFIGURATION message
- A recently agreed CR to 25.331 removed the use of activation time within CELL_FACH. As a result, the interaction between reconfiguration and cell re- selection can not be tested as currently specified. An alternative means to test this interaction is discussed for the physical channel reconfiguration procedure below. The proposal is to include the same principle as agreed for the physical channel reconfiguration in an update of this CR.

Subclause 8.2.4.17

- Normally the TrCH configuration to be used in CELL_FACH is provided on system information (SIB 5/ 6) in which it does not make sense to modify configuration via dedicated messages (the UE shall apply the system information configuration). Although it is not forbidden to use the TrCH reconfiguration procedure only to indicate a new CRNTI valid in the current cell at a later point in time, this is considered to be an ackward network scenario. The suggestion is to either remove or downprioritise the TC.
- A recently agreed CR to 25.331 removed the use of activation within CELL_FACH. As a result, the interaction between reconfiguration and cell re- selection can not be tested as currently specified. An alternative means to test this interaction is discussed below for the test case 8.2.6.16 on physical channel reconfiguration. The proposal is to include the same principle as agreed for the physical channel reconfiguration.

Subclause 8.2.4.21

- One would normally use the PhyCH reconfiguration procedure to switch from CELL_DCH to URA_PCH; since there are no TrCH parameters to be modified (see TS 25.303). Normally the configuration to be used in CELL_PCH is provided on system information (SIB 5/ 6) in which it does not make sense to modify the configuration via dedicated messages(the UE shall apply the system information configuration). Nevertheless, it is not forbidden to use the TrCH reconfiguration procedure for performing the channel switch. The suggestion is to either remove or downprioritise the TC.
- Messages used to move the UE to URA_PCH state should:
    - o include the IE "URA identity"
    - o not include the IE "Primary CPICH info"
- The CELL UPDATE CONFIRM message was missing in the message sequence and has been added

Physical Channel Reconfiguration (8.2.6)

1. Section 8.2.6.1:
    - No longer talks about "hard handover", since not all RL's are replaced.
    - Specified incorrect formula for activation time has been removed (default message includes correct activation time);
    - Unnecessary IE "downlink information common for all RL's" is indicated as absent for FDD
    - Some more physical channel parameters are changed (Tx power & DL channelisation code)

2. Section 8.2.6.7:

   - Default message can be used since it already includes a primary scrambling code and C-RNTI.

3. Section 8.2.6.15:

   - This test case assumes an extremely tight timing relation between the radio channel conditions and the RRC signalling. Since such a tight timing relation is considered extremely unlikely (the UE does not transmit the intra-frequency measurement reports in CELL_FACH state so UTRAN cannot direct the UE to a specific cell), a UTRAN will never be able to anticipate a radio environment change with the accuracy required for this test case, it is proposed to remove this test case.

4. Section 8.2.6.16

   DISCUSSION:
   In 34.123-1 v5.0.0, several reconfiguration test cases assume that it is possible to have the SS switch power settings after the UE has received a reconfiguration message but before it has delivered the response. We tend to think that it is extremely difficult to implement such a test case since it means the SS needs to know quite accurately when the UE has received the reconfiguration message.

   One could think that the usage of an activation time for the reconfiguration would enable some freedom to the SS regarding when to change the power settings, however the UE behaviour is not specified when using an activation time for reconfigurations in CELL_FACH state (this was confirmed by discussions during RAN2#30 (based on R2-021666) and should result in CR's during RAN2#31).

   In this CR we propose either an SS behaviour in which the SS, when receiving the reconfiguration confirm message in the original cell, does not ack the reception of this message on RLC level and changes the power settings.

   An alternative would be to let the SS change the power settings at a carefully selected time after transmitting the reconfiguration message, but loose the test requirements a bit to allow a UE, that performs the reconfiguration procedure "fast", to make the cell reselection and cell update after the reconfiguration procedure has finished.

   Alternative suggestions resulting in a simpler SS behaviour are invited.

   Note 1: Apart from effecting this physical reconfiguration test case (and 8.2.6.15 if not removed), whatever is decided may also impact transport channel reconfiguration test cases in 8.2.4.16 and 8.2.4.17 and radio bearer reconfiguration test cases in 8.2.2.17 and 8.2.2.18.

   Note 2: One solution could be to remove the concerning test cases, however since they test UE behaviour which happen in real-life situations, we think it would be good if these test cases would remain.

   Other changes:

   - The default message packet CELL_FACH to CELL_FACH includes no IE "Downlink information for each RL". Therefore just the default message can be used.

5. Section 8.2.6.19

   - The C-RNTI has been removed from the physical channel reconfiguration since it is not required in CELL_PCH state.

6. Section 8.2.6.20
   - This TC is update to the more typical case where the UTRAN informs the UE about a URA when going to URA_PCH state.
   - The C-RNTI has been removed from the physical channel reconfiguration since it is not required in URA_PCH state.

The modification is added to T1S-020407

- Clause 8.2.6.21 is removed from the change request because this is non package2 test-case
- Clause 8.2.6.22 is removed from the change request because this is non package2 test-case

In clause 8.2.2.1, 8.2.2.7, 8.2.2.8, 8.2.2.17, 8.2.2.18, 8.2.2.19.

- In specific message contents the IE ”Downlink information per radio link list” is absent in RADIO BEARER RECINFIGURATION message, because this information element is MP in case of RADIO BEARER RECINFIGURATION message.

In clause 8.2.2.18, 8.2.2.20, 8.2.4.16, 8.2.4.21

- In specific message contents the IE “ Activation time is removed from RADIO BEARER RECINFIGURATION message or TRANSPORT CHANNEL RECONFIGURATION message.

Consequences if not approved:	⌘	1. The test cases do not cover the typical use of the reconfiguration procedures 2. The test cases are not aligned with the core specifications 3. If changes are not approved, UE might not be properly tested.

Clauses affected:	⌘	Clause 8.2.2.1,8.2.2.7,8.2.2.8,8.2.2.9,8.2.2.10,8.2.2.11,8.2.2.17,8.2.2.18,8.2.2.19,8.2.2.20,8.2.2.23,8.2.2.24,8.2.4.1,8.2.4.3,8.2.4.7,8.2.4.9,8.2.4.10,8.2.4.16,8.2.4.17,8.2.4.21,8.2.6.1,8.2.6.7,8.2.6.8,8.2.6.9,8.2.6.15,8.2.6.16,8.2.6.19,8.2.6.20			
Other specs affected:	⌘	☐	Other core specifications	⌘	
		☐	Test specifications		
		☐	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/3G_Specs/CRs.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 Radio Bearer control procedure

8.2.2 Radio Bearer Reconfiguration

8.2.2.1 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success

8.2.2.1.1 Definition

8.2.2.1.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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.

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;

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.

~~The UE shall correctly reconfigure a radio bearer and L1 according to the RADIO BEARER RECONFIGURATION message, which specifies a hard handover to another UL scrambling code and responds with a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.2~~.

8.2.2.1.3 Test purpose

To confirm that the UE reconfigures the radio bearers according to a RADIO BEARER RECONFIGURATION message, which indicates a ~~hard handover to another~~ change ofUL scrambling code ,change of U-RNTI and RLC parameters.

8.2.2.1.4 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. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE, which commands a ~~hard handover in the same cell to a new~~ change of UL scrambling code ,change of U-RNTI and RLC parameters to be performed. The UE reconfigures the new ~~physical channel~~ parameter and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. The SS verifies that the UE starts to transmit periodic RLC STATUS PDUs.

The SS transmits a new RADIO BEARER RECONFIGURATION message to the UE, which commands the UE to reconfigure RLC parameters. The UE reconfigures the new parameters and and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. The SS verifies that the UE does not transmit any periodic RLC STATUS PDUs. 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			Void	
2			Void	
3	←		RADIO BEARER RECONFIGURATION	UL scrambling code is modified. U-RNTI and RLC configuration is modified.
4	→		RADIO BEARER RECONFIGURATION COMPLETE	
5	SS			The SS verifies that periodic RLC STATUS PDUs are received from the UE on AM RLC radio bearers each 400 ms during at least 5 seconds.
6	←		RADIO BEARER RECONFIGURATION	RLC configuration is modified.
7			RADIO BEARER RECONFIGURATION COMPLETE	
8	SS			The SS verifies that no periodic RLC STATUS PDUs are received from the UE on AM RLC radio bearers during at least 5 seconds.
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 RECONFIGURATION (FDD) (Step 3)

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 Annex A, with the following exceptions:

Information Element		Value/remark
New U-RNTI		
- SRNC identity		0000 0000 0010B
- S-RNTI		0000 0000 0000 0000 0010B
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		400
- 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		400
- 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		400
- RB mapping info		Not Present
- RB stop/continue		Not Present
- RB information to reconfigure	A3	(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		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		400
- 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
CHOICE mode		Not Present
DL Transport channel information common for all transport channel		Not Present
Deleted DL TrCH information		Not Present

Added or Reconfigured DL TrCH information		Not Present
Frequency info		Not Present
Maximum allowed UL TX power		Not Present
CHOICE channel requirement		Uplink DPCH info
- Scrambling code number		1
CHOICE Mode		FDD
- Downlink PDSCH information		Not Present
~~Uplink DPCH Info~~		
~~- Scrambling code number~~	~~1~~	
Downlink information common for all radio links		Not presenr
Downlink information per radio link list~~Downlink information common for all radio links~~		
-Downlink information for each radio link		
- Primary CPICH info		
- Primary scrambling code		Set to same code as used for cell 1
~~- Downlink DPCH info common for all RL~~		
~~- Timing Indicator~~	~~Maintain~~	

Condition	**Explanation**
A1	This IE need for “Non speech in CS”
A2	This IE need for “Speech in CS”
A3	This IE need for “Packet to CELL_DCH from CELL_DCH in PS”

RADIO BEARER RECONFIGURATION (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical to the message sub-type titled "Packet to CELL_DCH from CELL_DCH in PS" in Annex A, with the following exceptions:

Information Element	Value/remark
Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned by SS
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

RADIO BEARER RECONFIGURATION (FDD) (Step 6)

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 Annex A, with the following exceptions:

Information Element	Condition	Value/remark
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		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_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		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_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

Information Element	Condition	Value/remark
- 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		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_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	A3	(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		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_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
UL Transport channel information for all transport channels		Not Present
Added or Reconfigured UL TrCH information		Not Present
CHOICE mode		Not Present
DL Transport channel information common for all transport channel		Not Present
Deleted DL TrCH information		Not Present
Added or Reconfigured DL TrCH information		Not Present
Frequency info		Not Present

Information Element	Condition	Value/remark
Maximum allowed UL TX power		Not Present
CHOICE channel requirement		Not Present
CHOICE Mode - Downlink PDSCH information		FDD Not Present
Downlink information common for all radio links Downlink information per radio link list - Doenlink information for each rdio link - Primary CPICH info - Primary scrambling code		Not Present Set to same code as used for cell 1

Condition	Explanation
A1	This IE need for “Non speech in CS”
A2	This IE need for “Speech in CS”
A3	This IE need for “Packet to CELL_DCH from CELL_DCH in PS”

8.2.2.1.5 Test requirement

After step 3 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the new DPCH after the specified activation time has expired.

After step 4, the UE shall start transmitting periodical RLC STATUS PDUs.

After step 6, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

After step 7, the UE shall stop transmitting periodical RLC STATUS PDUs.

8.2.2.7 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Continue and stop)

8.2.2.7.1 Definition

8.2.2.7.2 Conformance requirement

If the IE "RB information to reconfigure" is included, the UE shall apply the following actions on the radio bearer identified with the value of the IE "RB identity". The UE shall:

…

- if the IE "RB stop/continue" is included; and
  - if the "RB identity" has a value greater than 2; and
    - if the value of the IE "RB stop/continue" is "stop":
      - configure the RLC entity for the radio bearer to stop;
      - set the IE "RB started" in the variable ESTABLISHED_RABS to "stopped" for that radio bearer;
    - if the value of the IE "RB stop/continue" is "continue":
      - configure the RLC entity for the radio bearer to continue;
      - set the IE "RB started" in the variable ESTABLISHED_RABS to "started" for that radio bearer;

Reference

3GPP TS 25.331 clause 8.2.2, 8.6.4.5.

8.2.2.7.3 Test purpose

To confirm that the UE reconfigures new radio bearer and stop the transmission and reception of the RLC entity belonging to the RB identity specified in the RADIO BEARER RECONFIGURATION message.

To confirm that the UE reconfigures new radio bearer and restart the transmission and reception of the RLC entity belonging to the RB identity specified in the RADIO BEARER RECONFIGURATION message.

8.2.2.7.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: CS-DCCH+DTCH (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. The SS transmits a RADIO BEARER RECONFIGURATION message including IE "RB stop/continue" set to "continue" for radio bearer with RB identity '3'. The UE reconfigures new radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. Then, the SS transmits an IDENTITY REQUEST message using AM RLC, the UE responds a IDENTITY RESPONSE message. The SS transmits a RADIO BEARER RECONFIGURATION message including IE "RB stop/continue" set to "stop" for radio bearer with RB identity "3". The UE reconfigures new radio bearer and transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. Then, the SS transmits a IDENTITY

REQUEST message using AM RLC, the UE does not acknowledge this message and also does not respond with a IDENTITY RESPONSE message. 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	This message include IE "RB stop/continue" set to "continue".
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3	←		IDENTITY REQUEST	
3a	→		IDENTITY RESPONSE	
4	←		RADIO BEARER RECONFIGURATION	This message include IE "RB stop/continue" set to "stop".
5	→		RADIO BEARER RECONFIGURATION COMPLETE	
6	←		IDENTITY REQUEST	
7	→			The SS shall not receive any data from the UE.
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

RADIO BEARER RECONFIGURATION (Step 1)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" found in Annex A with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list RB information to reconfigure -RB identity -RB stop/continue	 3 "continue"
UL Transport channel information for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Not Present
CHOICE mode	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	Not Present
Added or Reconfigured DL TrCH information	Not Present
Frequency info	Not Present
CHOICE channel requirement	Not Present
CHOICE Mode - Downlink PDSCH information	FDD Not Present
Downlink information common for all radio links	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 4)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RB information to reconfigure list RB information to reconfigure -RB identity -RB stop/continue	 3 "stop"

8.2.2.7.5 Test requirement

After step 3 the UE shall respond with a IDENTITY RESPONSE message.

After step 6 the UE shall not respond with a IDENTITY RESPONSE message on the stopped RB.

8.2.2.8 Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH: Success

8.2.2.8.1 Definition

8.2.2.8.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

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

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

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

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

…

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;

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.

~~The UE shall correctly reconfigure radio bearers according to a RADIO BEARER RECONFIGURATION message, which invoke a transition from CELL_DCH to CELL_FACH in the same cell and responds with a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.2~~.

8.2.2.8.3 Test purpose

To confirm that the UE establishes the reconfigured radio bearer(s) using common physical channel, after UE receives a RADIO BEARER RECONFIGURATION message.

8.2.2.8.4 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. The SS transmits a RADIO BEARER RECONFIGURATION message, which invoke a transition from CELL_DCH to CELL_FACH. The UE reconfigures the radio bearers and transmits a RADIO BEARER RECONFIGURATION 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		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE selects PRACH and S-CCPCH indicated in SIB5 and SIB6 after entering CELL FACH state.
3	←→		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 RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exception:

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	(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
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

8.2.2.8.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message.

8.2.2.9 Radio Bearer Reconfiguration from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.2.9.1 Definition

8.2.2.9.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

1> enter a state according to subclause 8.6.3.3.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

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.

1> 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):

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

1> select PRACH according to subclause 8.5.17;

1> select Secondary CCPCH according to subclause 8.5.19;

1> use the transport format set given in system information;

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

2> ignore that IE and stop using DRX.

The UE shall transmit a response message as specified in 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;

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

…

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.

~~The UE shall initiate cell update procedure when the UE performs cell reselection during radio bearer reconfiguration procedure. After the UE completes cell update procedure, the UE shall continue to perform a radio bearer reconfiguration procedure and correctly reconfigure the radio bearer.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.3.1.7, , 8.2.2.4~~8.2.2~~.

8.2.2.9.3 Test purpose

To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message after it completes a cell update procedure.

8.2.2.9.4 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. The SS transmits a RADIO BEARER RECONFIGURATION message, which includes IE "Primary CPICH info" and no dedicated physical channel information to transit from CELL_DCH to CELL_FACH. As the UE selects another cell than~~cannot detect~~ the specified cell, the UE shall initiate~~l~~ the cell update procedure. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving a CELL UPDATE message. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH 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		
1			Void	
2			Void	
3	←		RADIO BEARER RECONFIGURATION	Assign a transition from CELL_DCH to CELL_FACH.
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8	←→		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 RECONFIGURATION (Step 3) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" found in Annex A with the following exceptions:

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	(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
Frequency info	Not Present

Maximum allowed UL TX power	Not Present
Downlink information per radio link list -Downlink information for each radio links - Primary CPICH info - Primary scrambling code	 Set to same code as used for cell 1~~150~~

RADIO BEARER RECONFIGURATION (Step 3) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" found in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	 4

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A with the following exceptions:

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

CELL UPDATE CONFIRM (Step 5)

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

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

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.2.9.5 Test requirement

After step 3, the UE shall transmit CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5, the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message and then followed by RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.2.10 Radio Bearer Reconfiguration: from CELL_FACH to CELL_DCH: Success

8.2.2.10.1 Definition

8.2.2.10.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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;

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.

~~The UE shall correctly reconfigure radio bearers according to a RADIO BEARER RECONFIGURATION message, which invoke a transition from CELL_FACH to CELL_DCH in the same cell and responds with a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.2~~.

8.2.2.10.3 Test purpose

To confirm that the UE reconfigures the radio bearers according to a RADIO BEARER RECONFIGURATION message.

8.2.2.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message to the UE. The UE reconfigures the radio bearers 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	This message includes IE "Uplink DPCH Info"
2				Reconfiguration of radio bearer
3	→		RADIO BEARER RECONFIGURATION 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 RECONFIGURATION (Step 1)

Use the same message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A ,with the following exceptions:

Information Element	Value/remark
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	(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	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
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 channels	Not Present
Added or Reconfigured DL TrCH information	Not Present

8.2.2.10.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.2.11 Radio Bearer Reconfiguration from CELL_FACH to CELL_DCH: Failure (Unsupported configuration)

FFS

~~8.2.2.11.1 Definition~~

~~8.2.2.11.2 Conformance requirement~~

~~If the UTRAN instructs the UE to use a configuration, which it does not support and/or if the received message causes the variable UNSUPPORTED_CONFIGURATION to be set to TRUE, the UE shall:~~

~~1> transmit a failure response 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 "configuration unsupported".~~

~~1> set the variable UNSUPPORTED_CONFIGURATION 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 RADIO BEARER RECONFIGURATION message:~~

~~…~~

~~2> transmit a RADIO BEARER RECONFIGURATION FAILURE as response message on the DCCH using AM RLC.~~

~~The UE shall keep its current configuration when the UE receives a RADIO BEARER RECONFIGURATION message which includes unsupported configuration parameters and transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC which is set to "configuration unsupported" in IE "failure cause~~

~~Reference~~

~~3GPP TS 25.331 clause 8.2.2.6, 8.2.2.98.2.2.~~

~~8.2.2.11.3 Test purpose~~

~~To confirm that the UE transmits a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC if the received RADIO BEARER RECONFIGURATION message includes unsupported configuration parameters.~~

~~8.2.2.11.4 Method of test~~

~~Initial Condition~~

~~System Simulator: 1 cell.~~

~~UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.~~

~~Test Procedure~~

~~The UE is in CELL_FACH 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 unsupported configuration parameters, to the UE. The UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC and set "configuration unsupported" 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~~	←		~~RADIO BEARER RECONFIGURATION~~	~~The message includes an unsupported configuration for the UE~~
~~2~~	→		~~RADIO BEARER RECONFIGURATION FAILURE~~	~~The UE does not change the radio bearer.~~
~~3~~	→		~~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~~	~~Modify~~
~~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~~	~~RACHorCPCH~~
~~- UL Target Transport Channel ID~~	~~Not Present~~
~~- 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 3)~~

~~Check to see if the same message type found in [9] TS 34.108 Clause 9 is received, with the following exceptions:~~

~~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~~

~~RADIO BEARER RECONFIGURATION (FDD) (Step 1)~~

~~The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in Annex A with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Frequency info~~	
~~- UARFCN uplink (Nu)~~	~~0~~
~~- UARFCN downlink (Nd)~~	~~950~~

~~RADIO BEARER RECONFIGURATION (TDD) (Step 1)~~

~~The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in Annex A with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Frequency info~~ ~~- UARFCN (Nt)~~	~~0~~

~~RADIO BEARER RECONFIGURATION FAILURE (Step 2)~~

~~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 Annex A, with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Failure cause~~	~~Configuration unsupported~~

~~8.2.2.11.5 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 RACH at every 8s interval.~~

~~After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION FAILURE message on the DCCH using AM RLC stating "configuration unsupported" in IE "failure cause".~~

8.2.2.17 Radio Bearer Reconfiguration from CELL_FACH to CELL_FACH: Success

8.2.2.17.1 Definition

8.2.2.17.2 Conformance requirement

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

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

  2> select a suitable UTRA cell according to TS 25.304 on that frequency;

  2> 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):

    …

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;

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.

~~The UE shall correctly reconfigure radio bearers and transit from CELL_FACH in the current cell to CELL_FACH in another cell according to a RADIO BEARER RECONFIGURATION message and responds with a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.2~~.

8.2.2.17.3 Test purpose

To confirm that the UE establishes radio bearers according to a RADIO BEARER RECONFIGURATION message.

8.2.2.17.4 Method of test

Initial Condition

System Simulator: 1~~2~~ cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108 in cell 1.

Test Procedure

~~Table 8.2.2.17~~

~~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~~	~~-75~~	~~-75~~	~~-60~~
~~P-CCPCH (TDD)~~	~~dBm~~	~~-60~~	~~-75~~	~~-75~~	~~-60~~

~~Table 8.2.2.17 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_FACH state in cell 1. The SS transmits a RADIO BEARER RECONFIGURATION message, ~~which invoke a transition from CELL_FACH in the current cell to CELL_FACH in cell 2,~~ to the UE. ~~The SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.17.~~ The UE ~~moves to cell 2 and~~ configures the common physical channel and transmits a RADIO BEARER RECONFIGURATION 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**		
1	←		RADIO BEARER RECONFIGURATION	
2			Void	~~The SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.2.17.~~
3	→		RADIO BEARER RECONFIGURATION 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 RECONFIGURATION (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions.

Information Element	Value/remark
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	(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
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

Downlink information per radio link list	
-Downlink information for each radio links	
- Primary CPICH info	
- Primary scrambling code	Set to same code as used for cell 1~~150~~

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links	
- Primary CCPCH info	
-Cell parameters ID	4

8.2.2.17.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC~~ in cell 2~~.

8.2.2.18 Radio Bearer Reconfiguration from CELL_FACH to CELL_FACH: Success (Cell re-selection)

8.2.2.18.1 Definition

8.2.2.18.2 Conformance requirement

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

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

  2> select a suitable UTRA cell according to TS 25.304 on that frequency;

  2> 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):

    3> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "cell reselection";

    3> when the cell update procedure completed successfully:

      4> proceed as below.

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;

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or

- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

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.

~~The UE shall initiate the cell reselection procedure when the UE performs cell reselection during radio bearer reconfiguration procedure. After the UE completes cell update procedure, the UE shall continue to perform a radio bearer reconfiguration procedure and correctly reconfigure the radio bearer.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.3.1.7~~8.2.2~~.

8.2.2.18.3 Test purpose

To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message in cell 2 after it completes a cell update procedure instigated by a RADIO BEARER RECONFIGURATION message.

8.2.2.18.4 Method of test

Initial Condition

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

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.2.18

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	-75	-75	-60
P-CCPCH (TDD)	dBm	-60	-75	-75	-60

Table 8.2.2.18 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_FACH state in cell 1. On transmitting a RADIO BEARER RECONFIGURATION message to the UE, the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.2.18. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. UE transmit a UTRAN MOBILTY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH 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**		
1	←		RADIO BEARER RECONFIGURATION	
2				The SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.1.9.
3			Void	
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	
8	←→		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 RECONFIGURATION (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
~~Downlink information for each radio links~~ ~~- Primary CPICH info~~ ~~- Primary scrambling code~~	~~Not Present200~~
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	(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
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information per radio link list -Downlink information for each radio links - Primary CPICH info - Primary scrambling code	Set to same code as used for cell 1

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	Not present

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A with the following exceptions:

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

CELL UPDATE CONFIRM (Step 5)

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

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

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.18.5 Test requirement

After step 2 the UE shall transmit a CELL UPDATE message on the CCCH with IE "cell update cause" set to "cell reselection".

After step 5 UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

After step 6 UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.2.19 Radio Bearer Reconfiguration from CELL_DCH to CELL_DCH: Success (Subsequently received)

8.2.2.19.1 Definition

8.2.2.19.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- RADIO BEARER RECONFIGURATION; or

  …

the UE shall:

  2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

  2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

  2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

  2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

    3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

      4> ignore the transaction; and

      4> continue with any ongoing processes and procedures as the message was not received;

      4> and end the procedure.

    3> else:

      …

~~If the UE receives a RADIO BEARER RECONFIGURATION message before the UE configures the radio bearers according to the previous RADIO BEARER RECONFIGURATION message, the UE shall ignore the new RADIO BEARER RECONFIGURATION message and configure according to the previous RADIO BEARER RECONFIGURATION message. Finally, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 ~~clause 8.2.2,~~ clause 8.6.3.11.

8.2.2.19.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER RECONFIGURATION message before the UE configures the radio bearer according to a previous RADIO BEARER RECONFIGURATION message, it ignores the new RADIO BEARER RECONFIGURATION message and configures the radio bearer according to the previous RADIO BEARER RECONFIGURATION message received.

8.2.2.19.4 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 transmits a RADIO BEARER RECONFIGURATION message to the UE before the UE configures the radio bearer according to the RADIO BEARER RECONFIGURATION message prior to this new message. The UE ignores the new RADIO BEARER RECONFIGURATION message and configures according to the former RADIO BEARER RECONFIGURATION message. On completion of radio bearer configuration, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH 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	Periodic RLC STATUS PDU transmission is activated.~~For FDD, the IE "Secondary scrambling code" is set to "1".~~ For TDD, the code combination is assigned by SS.
2	←		RADIO BEARER RECONFIGURATION	Sent before the "activation time" in step 1 has elapsed. Periodic RLC STATUS PDU transmission is not activated.~~For FDD, the IE "Secondary scrambling code" is set to "2".~~ For TDD the code combination assigned is different to that assigned in step 1.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE ignores the RADIO BEARER RECONFIGURATION message in step 2 and performs configuration according to the RADIO BEARER RECONFIGURATION message in step 1.
4	SS			The SS verifies that periodic RLC STATUS PDUs are received from the UE on AM RLC radio bearers during at least 5 seconds.
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 RECONFIGURATION (Step 1) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
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	400
- 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	400

- 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	400
- 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	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	400
- 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
CHOICE mode	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	Not Present
Added or Reconfigured DL TrCH information	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	Not Present
~~- Uplink DPCH Info~~ ~~- Secondary scrambling code~~	 ~~1~~

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 Assigned by SS

RADIO BEARER RECONFIGURATION (Step 2) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	Not Present
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	(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	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

UL Transport channel information for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Not Present
CHOICE mode	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	Not Present
Added or Reconfigured DL TrCH information	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	Not Present
Downlink information per radio link list	Not Present
~~- Uplink DPCH Info~~ ~~- Secondary scrambling code~~	~~2~~

RADIO BEARER RECONFIGURATION (Step 2) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_DCH in PS" found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	Not Present A different code combination to that used in step 1.

8.2.2.19.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.2.20 Radio Bearer Reconfigure from CELL_FACH to CELL_DCH: Success (Subsequently received)

8.2.2.20.1 Definition

8.2.2.20.2 Conformance requirement

If the IE "RRC transaction identifier" is included in a received message, the UE shall perform the actions below. The UE shall:

If the received message is any of the messages:

- RADIO BEARER RECONFIGURATION; or

  …

the UE shall:

2> if the variable ORDERED_RECONFIGURATION is set to TRUE; or

2> if the variable CELL_UPDATE_STARTED is set to TRUE; or

2> if the table "Accepted transactions" in the variable TRANSACTIONS contains an entry with an IE "Message Type" set to ACTIVE SET UPDATE; or

2> if the received message contains a protocol error according to TS 25.331 clause 9 causing the variable PROTOCOL_ERROR_REJECT to be set to TRUE:

3> if the IE "RRC transaction identifier" of the received message is identical to the "RRC transaction identifier" stored for the same "Message Type" as the received message in the table "Accepted transactions" in the variable TRANSACTIONS:

4> ignore the transaction; and

4> continue with any ongoing processes and procedures as the message was not received;

4> and end the procedure.

3> else:

…

~~If the UE receives a RADIO BEARER RECONFIGURATION message before the UE configures the radio bearer according to the previous RADIO BEARER RECONFIGURATION message, the UE shall ignore the new RADIO BEARER RECONFIGURATION message and configure according to the previous RADIO BEARER RECONFIGURATION message. Finally, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 ~~clause 8.2.2,~~ clause 8.6.3.11.

8.2.2.20.3 Test purpose

To confirm that if the UE receives a new RADIO BEARER RECONFIGURATION message before the UE configures the radio bearer according to a previous RADIO BEARER RECONFIGURATION message, it ignores the new RADIO BEARER RECONFIGURATION message and configures the radio bearer according to the previous RADIO BEARER RECONFIGURATION message received.

8.2.2.20.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a first RADIO BEARER RECONFIGURATION message to the UE. SS transmits then a second RADIO BEARER RECONFIGURATION message to the UE before the ~~UE configures the radio bearer according to the~~ activation time of the first RADIO BEARER RECONFIGURATION message has expired~~prior to this new message~~. The UE ignores the new RADIO BEARER RECONFIGURATION message and configures the radio bearers according to the former RADIO BEARER RECONFIGURATION message. On completion of radio bearer configuration, the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC. SS calls for generic procedure C.3 ~~2~~ to check that UE is in CELL_DCH ~~FACH~~ state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	For FDD, the IE "Secondary scrambling code" is set to "1". For TDD, the code combination is assigned by SS.
1a (TDD)			A code combination is assigned for the SS.	
2	←		RADIO BEARER RECONFIGURATION	SS sends this message before the expiry of activation time specified in RADIO BEARER RECONFIGURATION message of step 1. For FDD, the IE "Secondary scrambling code" is set to "2". For TDD, the code combination assigned is different to that assigned in step 1.
3	→		RADIO BEARER RECONFIGURATION COMPLETE	The UE ignores the RADIO BEARER RECONFIGURATION message in step 2 and confirms configuration according to the RADIO BEARER RECONFIGURATION message in step 1.
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 RECONFIGURATION (step 1) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256
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	(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	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

Downlink information per radio link list - Downlink information for each radio link - Primary CPICH info - Primary scrambling code ~~- Uplink DPCH Info~~ - Downlink DPCH info for each RL - DL channelisation code - Secondary scrambling code	Set to same code as used for cell 1 1

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Speech in CS" or "Non speech in CS" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	[256+Current CFN-[current CFN mod 8 + 8]]MOD 256 Assigned by SS

RADIO BEARER RECONFIGURATION (Step 2) (FDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time	Not Present
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	(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	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
UL Transport channel information for all transport channels	Not Present
Added or Reconfigured UL TrCH information	Not Present
CHOICE mode	Not Present
DL Transport channel information common for all transport channel	Not Present
Deleted DL TrCH information	Not Present
Added or Reconfigured DL TrCH information	Not Present
Downlink information for each radio link list - Downlink information for each radio link - Primary CPICH info - Primary scrambling code ~~- Uplink DPCH Info~~ - Downlink DPCH info for each RL - DL channelisation code - Secondary scrambling code	 Set to same code as used for cell 1 2

RADIO BEARER RECONFIGURATION (Step 2) (TDD)

The contents of RADIO BEARER RECONFIGURATION message in this test case is identical as "Packet to CELL_DCH from CELL_FACH in PS" found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Activation Time - Uplink DPCH timeslots and codes - First timeslot code list	Not Present A different code combination to that used in step 1.

8.2.2.20.5 Test requirement

After step 2 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.2.23 Radio Bearer Reconfiguration from CELL_FACH to CELL_PCH: Success

8.2.2.23.1 Definition

8.2.2.23.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_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 TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 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 TS 25.331 subclause 8.6.3.2.

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

2> set the variable INVALID_CONFIGURATION to TRUE.

…

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;

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.

~~The UE shall configure radio bearers so as to transit from CELL_FACH state to CELL_PCH state according to the received RADIO BEARER RECONFIGURATION message and responds with a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4

8.2.2.23.3 Test purpose

To confirm that the UE transmits RADIO BEARER RECONFIGURATION COMPLETE message and enters CELL_PCH state after it received a RADIO BEARER RECONFIGURATION message, which invoke the UE to transit from CELL_FACH to CELL_PCH. To check that the UE does not transmit periodical RLC status in CELL_PCH state after it has been activated.

8.2.2.33.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC and enters CELL_PCH state. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.~~The SS transmits a PAGING TYPE 1 message, causing the UE to enter CELL_FACH state and the UE shall transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "paging response".~~

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1	←		RADIO BEARER RECONFIGURATION	
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3		SS		The UE is in CELL_PCH state. The SS verifies that no periodic RLC STATUS PDUs are received from the UE on AM RLC radio bearers during at least 5 seconds.
~~4~~	~~←~~		~~PAGING TYPE 1~~	~~The SS transmits this message included a matched identity.~~
~~5~~	~~→~~		~~CELL UPDATE~~	~~The UE is in CELL_FACH state.~~
4	←→		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 RECONFIGURATION (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
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	600
- 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	600
- 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	600
- 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	600
- RB mapping info	Not Present
- RB stop/continue	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~~100~~

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio links - Primary CCPCH info -Cell parameters ID	 4

~~PAGING TYPE 1 (Step 4)~~

~~Use the same message sub-type titled "TM (Packet in PS)" in default message content of TS 34.108 with following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Paging record list~~ ~~Paging record~~ ~~- CHOICE Used paging identity~~ ~~- U-RNTI~~ ~~- SRNC Identity~~ ~~- S-RNTI~~	 ~~UTRAN identity~~ ~~Previously assigned SRNC identity~~ ~~Previously assigned S-RNTI~~

~~CELL UPDATE (Step 5)~~

~~The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell Update Cause~~	~~"paging response"~~

8.2.2.23.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

After step 2, the UE shall not transmit any periodical RLC STATUS PDUs.

~~After step 4 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "paging response".~~

8.2.2.24 Radio Bearer Reconfiguration from CELL_FACH to URA_PCH: Success

8.2.2.24.1 Definition

8.2.2.24.2 Conformance requirement

If the UE receives:

- a RADIO BEARER RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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 TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 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 TS 25.331 subclause 8.6.3.2.

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

2> set the variable INVALID_CONFIGURATION to TRUE.

…

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;

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.

~~The UE shall configure radio bearers so as to transit from CELL_FACH state to URA_PCH state according to the received RADIO BEARER RECONFIGURATION message and responds with a RADIO BEARER RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.2~~.

8.2.2.24.3 Test purpose

To confirm that the UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message and enters URA_PCH state after it receives a RADIO BEARER RECONFIGURATION message, which invoke the UE to transit from CELL_FACH to URA_PCH. To check that the UE does not transmit periodical RLC status in URA_PCH state after it has been activated.

8.2.2.24.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The SS transmits a RADIO BEARER RECONFIGURATION message. The UE transmits a RADIO BEARER RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state. SS calls for generic procedure C.5 to check that UE is in URA_PCH state.~~The SS transmits a PAGING TYPE 1~~

~~message, causing the UE to enter CELL_FACH state and the UE shall transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "paging response".~~

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		RADIO BEARER RECONFIGURATION	Periodical RLC status transmission is activated.
2	→		RADIO BEARER RECONFIGURATION COMPLETE	
3				The UE is in URA_PCH state. The SS verifies that no periodic RLC STATUS PDUs are received from the UE on AM RLC radio bearers during at least 5 seconds.
~~4~~	~~←~~		~~PAGING TYPE 1~~	~~The SS transmits this message included a matched identity.~~
~~5~~	~~→~~		~~CELL UPDATE~~	~~The UE is in CELL_FACH state.~~
4	←→		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

RADIO BEARER RECONFIGURATION (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA identity	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	600
- 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	600

- 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	600
- RB mapping info	Not Present
- RB stop/continue	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~~100~~

RADIO BEARER RECONFIGURATION (Step 1) (TDD)

The contents of RADIO BEARER SETUP message in this test case is identical as "Packet to CELL_FACH from CELL_DCH in PS" as found in Annex A with the following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio links - Primary CCPCH info -Cell parameters ID	 4

~~PAGING TYPE 1 (Step 4)~~

~~Use the same message sub-type titled "TM (Packet in PS)" in default message content of TS 34.108 with following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Paging record list~~ ~~Paging record~~ ~~- CHOICE Used paging identity~~ ~~- U-RNTI~~ ~~- SRNC Identity~~ ~~- S-RNTI~~	 ~~UTRAN identity~~ ~~Previously assigned SRNC identity~~ ~~Previously assigned S-RNTI~~

~~CELL UPDATE (Step 5)~~

~~The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell Update Cause~~	~~"paging response"~~

8.2.2.24.5 Test requirement

After step 1 the UE shall transmit a RADIO BEARER RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

After step 2, the UE shall not transmit any periodical RLC STATUS PDUs.

~~After step 4 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "paging response".~~

~~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.~~

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

~~If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:~~

~~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 TS5.304.~~

~~1> if the received reconfiguration message included the IE "Primary CPICH info"), and the UE selects 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> if the UE is in CELL_PCH or URA_PCH state:~~

~~4> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Uplink data transmission";~~

~~4> proceed as below.~~

~~1> select PRACH according to TS25.331 subclause 8.5.17;~~

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

~~1> use the transport format set given in system information;~~

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

~~2> ignore that IE and stop using DRX.~~

~~1> if the contents of the variable C_RNTI is empty:~~

~~2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";~~

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

~~3> if the UE is in CELL_PCH or URA_PCH state:~~

~~4> initiate a cell update procedure according to TS25.331 subclause 8.3.1 using the cause "Uplink data transmission";~~

~~4> proceed as below.~~

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

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

~~1> the procedure ends.~~

~~Reference~~

~~3GPP TS 25.331 clause 8.2.2, 8.5 and 8.6.~~

~~8.2.3.20.3 Test purpose~~

~~1.To confirm that the UE transits from CELL_DCH to CELL_FACH according to the RADIO BEARER RELEASE message.~~

~~2.To confirm that the UE transmits RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC on a common physical channel in a different frequency.~~

~~8.2.3.20.4 Method of test~~

~~Initial Condition~~

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

~~UE: CS-DCCH+DTCH_DCH (state 6-9) or PS-DTCH+DCCH_DCH (state 6-10) as specified in clause 7.4 of TS 34.108, depending to the CN domain(s) supported by the UE.~~

~~Test Procedure~~

~~Table 8.2.3.20~~

~~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 8.2.3.20 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_DCH state of cell 1 and the SS has configured its downlink transmission power setting according to columns "T0" in table 8.2.3.20. The SS switches its downlink transmission power settings to columns "T1" and then transmits MEASUREMENT CONTROL message in order for the UE to know information of cell 6. The SS transmits a RADIO BEARER RELEASE message including new frequency information to the UE. The UE releases the radio access bearer and moves into cell 6. The UE transmits CELL UPDATE message with IE "Cell update cause" set to "cell reselection". SS then transmit CELL UDPATE CONFIRM with IE "New C_RNTI". The UE shall respond with an UTRAN MOBILITY INFORMATION CONFIRM message, and then transmits a RADIO BEARER RELEASE COMPLETE message on the uplink DCCH using AM RLC. The 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~~			~~The initial state of 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 8.2.3.20.~~
~~2~~			~~The SS switches its downlink transmission power settings to columns "T1" in table 8.2.3.20.~~
~~3~~	~~←~~	~~MEASUREMENT CONTROL~~	~~The SS specifies inter-frequency measurement for cell 6.~~
~~4~~	~~←~~	~~RADIO BEARER RELEASE~~	~~Including new frequency information.~~
~~5~~	~~→~~	~~CELL UPDATE~~	~~The IE "Cell update cause" is set to "cell reselection".~~
~~6~~	~~←~~	~~CELL UPDATE CONFIRM~~	~~Including the IE" New C-RNTI"~~
~~7~~	~~→~~	~~UTRAN MOBILITY INFORMATION CONFIRM~~	
~~8~~	~~→~~	~~RADIO BEARER RELEASE COMPLETE~~	
~~9~~	~~↔~~	~~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~~

~~MEASUREMENT CONTROL (Step 3)~~

~~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~~	~~No inter-frequency cells removed~~
~~- New inter-frequency cells~~	
~~- Inter-frequency cell id~~	~~6~~
~~- Frequency info~~	
~~- UARFCN uplink (Nu)~~	~~UARFCN of the uplink frequency for cell 6~~
~~- UARFCN downlink (Nd)~~	~~UARFCN of the downlink frequency for cell 6~~
~~- Cell info~~	
~~- Cell individual offset~~	~~0 dB~~
~~- Reference time difference to cell~~	~~0 chips~~
~~- Read SFN Indicator~~	
~~- CHOICE Mode~~	~~FDD~~
~~- Primary CPICH Info~~	
~~- Primary Scrambling Code~~	~~350~~
~~- 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~~	
~~- SFN-SFN observed time difference reporting indicator~~	~~No report~~
~~- Cell synchronisation information reporting indicator~~	~~FALSE~~
~~- Cell Identity reporting indicator~~	~~TRUE~~
~~- COICE Mode~~	~~FDD~~
~~- CPICH Ec/No reporting indicator~~	~~FALSE~~
~~- CPICH RSCP reporting indicator~~	~~TRUE~~
~~- Pathloss reporting indicator~~	~~FALSE~~
~~- Reporting cell status~~	~~Not 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~~	~~2~~
~~- Measurement validity~~	
~~- UE state~~	~~CELL_DCH~~
~~- Inter-frequency set update~~	~~Not Present~~
~~- CHOICE report criteria~~	~~Inter-frequency measurement reporting criteria~~
~~- Parameters required for each event~~	
~~- Inter-frequency event identity~~	~~2c~~
~~- Threshold used frequency~~	~~Not present~~
~~- W used frequency~~	~~Not present~~
~~- Hysteresis~~	~~1.0 dB~~
~~- Time to trigger~~	~~10 s~~

~~- Reporting cell status~~ ~~- CHOICH reported cell~~ ~~- Maximum number of reported cells~~ ~~- Parameters required for each non-used frequency~~ ~~- Threshold non used frequency~~ ~~- W non-used frequency~~	~~Report cells within active and/or monitored set on used frequency or within active and/or monitored set on non-used frequency~~ ~~2~~ ~~-85dbm~~ ~~0.0~~

~~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 the following exception:~~

~~**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~~

~~CELL UPDATE (Step 5)~~

~~The contents of CELL UPDATE message is 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 6)~~

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

~~**Information Element**~~	~~**Value/remark**~~
~~New C-RNTI~~	~~0000 0000 0000 0001B~~

~~UTRAN MOBILITY UPDATE CONFIRM (Step 7)~~

~~The contents of UTRAN MOBILITY UPDATE CONFIRM message is identical as "UTRAN MOBILITY UPDATE CONFIRM message" as found in [9] TS 34.108 clause 9.~~

~~8.2.3.20.5 Test requirement~~

~~After step 4 the UE shall transmit a CELL UPDATE message on the CCCH in cell 6.~~

~~After step 6 the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC in cell 6.~~

~~After step 7 the UE shall transmit a RADIO BEARER RELEASE COMPLETE message on the DCCH using AM RLC in cell 6.~~

~~After step 8 the UE shall be in CELL_FACH state of cell 6.~~

8.2.4 Transport channel reconfiguration

8.2.4.1 Transport channel reconfiguration (Timing re- initialised hard handover with transmission rate modification) from CELL_DCH to CELL_DCH: Success ~~with no transport channel type switching~~

8.2.4.1.1 Definition

8.2.4.1.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATIONmessage; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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.

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;

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.

~~The UE shall transmit TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC after it correctly reconfigures the radio bearers according to the TRANSPORT CHANNEL RECONFIGURATION message, which specifies a hard handover by changing the scrambling code for the DPCH.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.4~~.

8.2.4.1.3 Test purpose

To confirm that the UE reconfigures the channel configuration according to a TRANSPORT CHANNEL RECONFIGURATION message, which is used to change the TFCS and the TFS while replacing the RL(s) in the active set with a set of RL(s) disjunct with the previous active set~~also specifies a hard handover by changing the scrambling code for the DPCH.~~

8.2.4.1.4 Method of test

Initial Condition

System Simulator: 2 cells - Cell 1 and cell 2 are active~~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. Either a streaming CS domain RAB (state 6-9) or an interactive/ background PS domain RAB (state 6-10) has been established. UE connected to cell 1.

Test Procedure

The UE is in CELL_DCH state, connected to cell 1. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE, which includes new configuration parameters. The message is used to replace the RL(s) in the active set with a set of RL(s) disjunct with the previous active set In this case, the connection to cell 1 is discontinued while a new connection to cell 2 is established at the same time. The TRANSPORT CHANNEL RECONFIGURATION message is used to also change the TFCS and TFS e.g. because the currently used rate is not available on cell 2. The TFCS and TFS change from a value corresponding with one reference configuration in 34.108 to another such reference configuration, e.g. to change an interactive PS domain RAB from UL:64 DL:384 to UL:32 DL:64 or to change a streaming CS RAB from UL:14.4 DL:14.4 to UL:57.6 DL:57.6.The UE shall~~reconfigure~~ apply the new configuration and then transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH 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			Void	
2			Void	
3	←		TRANSPORT CHANNEL RECONFIGURATION	The TFCS and the TFS are changed while replacing the RL(s) in the active set with a set of RL(s) disjunct with the previous active set~~UL scrambling code is modified.~~
4			Void	
5	→		TRANSPORT CHANNEL 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

TRANSPORT CHANNEL RECONFIGURATION (FDD)

The contents of TRANSPORT CHANNEL 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 Annex A, with the following exceptions:

For condition A1 (for CS non- speech the following IEs are not present in the default message, while included below: UL Transport channel information for all transport channels, Added or Reconfigured UL TrCH information, DL Transport channel information common for all transport channel, Added or Reconfigured DL TrCH information).

Information Element	Value/remark
UL Transport channel information for all transport channels	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Added or Reconfigured UL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
DL Transport channel information common for all transport channel	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Added or Reconfigured DL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS"
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE channel requirement	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS" unless explicitly indicated otherwise in the following
-Uplink DPCH power control info	Not present
Downlink information common for all radio links	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS" unless explicitly indicated otherwise in the following
- Downlink DPCH info common for all RL	
- Timing indicator	Initialise
- Downlink DPCH power control information	Not present
- Default DPCH Offset Value	Arbitrary set to value 0..306688 by step of 512
Downlink information for each radio link list	Set to the same values as for "Packet to CELL_DCH from CELL_FACH in PS" unless explicitly indicated otherwise in the following
- Downlink information for each radio links	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Ref. to the Default setting in TS34.108 clause 6.1 (FDD) for cell 2: 150
- Downlink DPCH info for each RL	
- DPCH frame offset	Set to value : Default DPCH Offset Value mod 38400
- DL channelisation code	
- Scrambling code change	Not Present
~~Uplink DPCH info~~	
~~- Scrambling code number~~	~~Different value from previous value~~
~~Downlink information common for all radio links~~	
~~- Downlink DPCH info common for all RL~~	
~~- Timing Indicator~~	~~Maintain~~

TRANSPORT CHANNEL RECONFIGURATION (TDD)

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 Annex A, with the following exceptions:

Information Element	Value/remark
- Uplink DPCH timeslots and codes	
- First timeslot code list	A different code combination to that used previously.
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

8.2.4.1.5 Test requirement

After step 3 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC on a dedicated physical channel using another radio link.

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);

…

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:

…

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

~~The UE shall revert to the old configuration when the UE fails to reconfigure the new physical channel according to the received TRANSPORT CHANNEL RECONFIGURATION message and transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC which is set to "physical channel failure" in IE "failure cause".~~

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.5.4~~8.2.4~~.

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: 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. Either a streaming CS domain RAB (state 6-9) or an interactive/ background PS domain RAB (state 6-10) has been established.

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 TRANSPORT CHANNEL RECONFIGURATION message to the UE, which includes new configuration parameters (rate change including change of speading factor e.g. to change an interactive PS domain RAB from UL:64 DL:384 to UL:32 DL:64 or to change a streaming CS RAB from UL:14.4 DL:14.4 to UL:57.6 DL:57.6) but the SS does not configure the new physical channel specified in this message and keep its old configuration. Therefore, the UE cannot synchronise with the SS on the new physical channel and shall revert to the old configuration 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	~~Specifies a change in the TFS of the dedicated transport channel used.~~
2				The SS does not reconfigure the new configuration.
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	Modify
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:

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" or "Packet to CELL_DCH from CELL_DCH in PS" as found in Annex A, with the following exceptions:~~Use 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 Annex A, with the following exception.~~

Information Element	Value/remark
UL Transport channel information for all transport channels	Set to the same values as for “Packet to CELL_DCH from CELL_FACH in PS”
Added or Reconfigured UL TrCH information	Set to the same values as for “Packet to CELL_DCH from CELL_FACH in PS”
DL Transport channel information common for all transport channel	Set to the same values as for “Packet to CELL_DCH from CELL_FACH in PS”
Added or Reconfigured DL TrCH information	Set to the same values as for “Packet to CELL_DCH from CELL_FACH in PS”
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
CHOICE channel requirement	Set to the same values as for “Packet to CELL_DCH from CELL_FACH in PS” unless explicitly indicated otherwise in the following
-Uplink DPCH power control info	Not present
Downlink information common for all radio links	Set to the same values as for “Packet to CELL_DCH from CELL_FACH in PS” unless explicitly indicated otherwise in the following
- Downlink DPCH info common for all RL	
- Downlink DPCH power control information	Not present
Downlink information for each radio link list	Set to the same values as for “Packet to CELL_DCH from CELL_FACH in PS” unless explicitly indicated otherwise in the following
- Downlink information for each radio links	
- CHOICE mode	FDD
- Downlink DPCH info for each RL	
- DPCH frame offset	Set to the value used when establishing this radio link
- DL channelisation code	
- Scrambling code change	Not Present

~~Information Element~~	~~Value/remark~~
~~Uplink DPCH info~~	
~~- Scrambling code number~~	~~Different value from previous value~~
~~Downlink information common for all radio links~~	
~~- Downlink DPCH info common for all RL~~	
~~- Timing Indicator~~	~~Maintain~~

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 Annex A, 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 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.

8.2.4.4 Transport channel reconfiguration from CELL_DCH to CELL_DCH: Failure (Physical channel failure and ~~reversion failure~~cell reselection)

8.2.4.4.1 Definition

8.2.4.4.2 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.

…

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.

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.

The UE shall:

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

…

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

~~The UE shall perform a cell update when physical channel failure and reversion failure occur. After the UE completes cell update procedure, the UE transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC which set IE "failure cause" to "physical channel failure".~~

Reference

3GPP TS 25.331 clause 8.2.2.7, 8.2.2.9, 8.3.1.7~~8.2.4~~.

8.2.4.4.3 Test purpose

To confirm that the UE transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message after it completes a cell update procedure when the UE cannot synchronise with the SS on the new channel before T312 expires and fails to revert to the old configuration.

8.2.4.4.4 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.The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE. The message specifies a new configuration but the SS does not reconfigure the new channel specified in this message and release the old configuration. The UE cannot synchronise with SS before T312 expires and shall attempt to revert to the old configuration. The UE cannot revert to the old configuration and then transmit 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 CCCH after receiving CELL UPDATE message. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC and subsequently transmits a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting IE "failure cause" to "physical channel failure".

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2				The SS does not reconfigure L1 in accordance with TRANSPORT CHANNEL RECONFIGURTION message and release the old configuration.
3	→		CELL UPDATE	This message includes the value "radio link failure" set in IE "Cell update cause".
4	←		CELL UPDATE CONFIRM	This message includes IE "Physical channel information elements".
5				The SS changes physical channel configuration according to the IE "Physical channel information elements" included in the CELL UPDATE CONFIRM message.
6	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
7	→		TRANSPORT CHANNEL RECONFIGURATION FAILURE	The IE "failure cause" shall be set to "physical channel failure"

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 1)

Use 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 Annex A, with the following exception.

Information Element	Value/remark
Uplink DPCH info	
- Scrambling code number	Different value from previous value
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indicator	Maintain

CELL UPDATE (Step 3)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A 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 0000 0001'
Cell Update Cause	"radio link failure"

CELL UPDATE CONFIRM (Step 4) (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
RRC State indicator	CELL_DCH
UplinkDPCH Info	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

CELL UPDATE CONFIRM (Step 4) (TDD)

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
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

TRANSPORT CHANNEL RECONGURATION FAILURE (Step 7)

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 Annex A, with the following exceptions:

Information Element	Value/remark
Failure cause	"physical channel failure"

8.2.4.4.5 Test requirement

After step 2 the UE shall transmit a CELL UPDATE message on the uplink CCCH with IE "Cell update cause" set to "radio link failure".

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION FAILURE message on the DCCH using AM RLC, setting the IE "failure cause" to "physical channel failure".

8.2.4.7 Transport channel reconfiguration from CELL_DCH to CELL_FACH: Success

8.2.4.7.1 Definition

8.2.4.7.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

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

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

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

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

…

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;

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.

~~The UE shall correctly reconfigure the channels according to TRANSPORT CHANNEL RECONFIGURATION message and transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.4~~.

8.2.4.7.3 Test purpose

To confirm that the UE reconfigures the channel according to a TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.7.4 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. An interactive/ background PS domain RAB has been established.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message to the UE and the UE performs a state transition from CELL_DCH to CELL_FACH in the same cell. The UE then reconfigures the new channels according to this message and system information messages. Finally, the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION 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**		
1	←		TRANSPORT CHANNEL RECONFIGURATION	~~IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.~~
2				UE shall perform the reconfiguration
3	→		TRANSPORT CHANNEL RECONFIGURATION 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

TRANSPORT CHANNEL RECONFIGURATION

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B
Frequency info	Not Present
Maximum allowed UL TX power	Not Present

8.2.4.7.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the common physical channel.

8.2.4.9 Transport channel reconfiguration from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.4.9.1 Definition

8.2.4.9.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

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

    2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> 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):

    2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

    2> when the cell update procedure completed successfully:

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

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

    2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

    2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

…

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

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;

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.

~~The UE shall initiate a cell update procedure when the UE performs cell reselection during a transport channel reconfiguration procedure. After the UE completes a cell update procedure, the UE shall continue to perform the transport channel reconfiguration procedure and correctly reconfigure the channel.~~

Reference

3GPP TS 25.331 clause 8.2.2.3 , 8.2.2.4, 8.3.1.7~~8.2.4~~.

8.2.4.9.3 Test purpose

To confirm that the UE transmits TRANSPORT CHANNEL RECONFIGURATION COMPLETE message after it completes a cell update procedure.

8.2.4.9.4 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. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message, which includes IE "Primary CPICH info" and no dedicated physical channel information to transit from CELL_DCH to CELL_FACH, to the UE.~~ As the UE cannot detect the specified cell,~~ T~~t~~he UE shall initiate the a cell re-selection procedure, because it selects another cell than the one for which the IE “New C-RNTI” provided by SS is valid. It~~ and~~

transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving a CELL UPDATE message. The UE then transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1			Void	
2			Void	
3	←		TRANSPORT CHANNEL RECONGURATION	This message include IE "Primary CPICH info".
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (FDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exceptions.

Information Element	**Value/remark**
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information for each radio links	Identifies the cell for which the IE “New C-RNTI” is valid
- Primary CPICH info	
- Primary scrambling code	150

TRANSPORT CHANNEL RECONFIGURATION (Step 3) (TDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exceptions.

Information Element	**Value/remark**
Downlink information for each radio links	
- Primary CCPCH info	
- Cell parameters ID	4

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A with the following exceptions:

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

CELL UPDATE CONFIRM (Step 5)

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

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

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

TRANSPORT CHANNEL RECONFIGURATION COMPLETE (Step 7)

Use the message with the same message type specified in Annex A.

8.2.4.9.5 Test requirement

After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5 UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

After step 6 UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.4.10 Transport channel reconfiguration from CELL_FACH to CELL_DCH: Success

8.2.4.10.1 Definition

8.2.4.10.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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;

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.

~~The UE shall correctly reconfigure the channels according to a TRANSPORT CHANNEL RECONFIGURATION message, which trigger a state transition from CELL_FACH to CELL_DCH in the same cell.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.4~~.

8.2.4.10.3 Test purpose

To confirm that the UE reconfigures a new channel using dedicated physical channel according to a TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.10.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in CELL_FACH state. The UE has previously stored radio bearer and transport channel parameters for use in CELL_DCH.The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message, which modifies the rate as compared to the stored configuration to the UE. The message also includes the physical layer parameters e.g. IE "Uplink DPCH info" and IE "Downlink DPCH info" leading to a state transition from CELL_FACH to CELL_DCH in the same cell, to the UE. The UE shall reconfigure the new channel according to this message. Finally, the UE transmits a TRANSPORT 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	←		TRANSPORT CHANNEL RECONFIGURATION	Includes both IE "Uplink DPCH Info" and IE "Downlink DPCH Info" in the message.
2				Reconfiguration of transport channel
3	→		TRANSPORT CHANNEL RECONFIGURATION 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

TRANSPORT CHANNEL RECONFIGURATION

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A with the following exceptions:~~.~~

Information Element	**Value/remark**
Added or Reconfigured UL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS". Only the DCH for DTCH is included, since only for that TrCH the rate is changed as compared to the stored CELL_DCH configuration
Added or Reconfigured DL TrCH information	Set to the same values as for "Packet to CELL_DCH from CELL_DCH in PS". Only the DCH for DTCH is included, since only for that TrCH the rate is changed as compared to the stored CELL_DCH configuration
Frequency info	Not Present
Maximum allowed UL TX power	Not Present
Downlink information for each radio link list	
- Downlink information for each radio links	
- CHOICE mode	FDD
- Downlink DPCH info for each RL	
- DL channelisation code	
- Scrambling code change	Not Present

TRANSPORT CHANNEL RECONFIGURATION COMPLETE

Use the message with the same message type specified in Annex A.

8.2.4.10.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT RECONFIGURATION COMPLETE message on the newly configured DPCH.

8.2.4.16 Transport channel reconfiguration from CELL_FACH to CELL_FACH: Success with no transport channel type switching

8.2.4.16.1 Definition

8.2.4.16.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

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

2> select a suitable UTRA cell according to TS 25.304 on that frequency;

2> 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):

…

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;

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.

~~The UE shall remain in CELL_FACH state in another cell and transmit TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC after transition from CELL_FACH in the current cell to CELL_FACH in another cell as requested in the received TRANSPORT CHANNEL RECONFIGURATION message.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.4~~.

8.2.4.16.3 Test purpose

To confirm that the UE transits from CELL_FACH in the current cell to CELL_FACH in another cell according to a TRANSPORT CHANNEL RECONFIGURATION message received from the SS.

8.2.4.16.4 Method of test

Initial Condition

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

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.4.16

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	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.2.4.16 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_FACH state in cell 1. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message, ~~which includes the parameters that invoke the UE to transit from CELL_FACH in the current cell to CELL_FACH in cell 2,~~ to the UE. Then the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.4.16. As a result of this, tT~~T~~he UE re- selects ~~moves to~~ cell 2 and configures the new transport channels and the common physical channel according to the system information messages. Since the SS included a C-RNTI that is valid within cell 2, the UE need not perform the cell update procedure but can proceed by~~and~~ transmittings~~s~~ a TRANSPORT CHANNEL RECONFIGURATION 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		
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2				The SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.4.16.
3	→		TRANSPORT CHANNEL RECONFIGURATION 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

TRANSPORT CHANNEL RECONFIGURATION (FDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions.

Information Element	Value/remark
Downlink information for each radio links - Primary CPICH info - Primary scrambling code	150

TRANSPORT CHANNEL RECONFIGURATION (TDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions.

Information Element	Value/remark
Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	4

8.2.4.16.5 Test requirement

After step 2 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on DCCH using AM RLC in cell 2.

8.2.4.17 Transport channel reconfiguration from CELL_FACH to CELL_FACH: Success (Cell re-selection)

8.2.4.17.1 Definition

8.2.4.17.2 Conformance requirement

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

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

2> select a suitable UTRA cell according to TS 25.304 on that frequency;

2> 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):

3> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "cell reselection";

3> when the cell update procedure completed successfully:

4> proceed as below.

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;

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

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.

~~The UE shall initiate the cell update procedure when the UE performs cell reselection during a transport channel reconfiguration procedure. After the UE complete cell update procedure, the UE shall continue to perform the transport channel reconfiguration procedure and correctly reconfigure the channel.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.3.1.7~~8.2.4~~.

8.2.4.17.3 Test purpose

To confirm that the UE transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message after UE completes a cell update procedure indicated by a TRANSPORT CHANNEL RECONFIGURATION message.

8.2.4.17.4 Method of test

Initial Condition

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

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.2.4.17

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	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.2.4.17 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_FACH state in cell 1. On transmitting a TRANSPORT CHANNEL RECONFIGURATION message, which does not include the IE "Primary CPICH info", the SS configures its downlink transmission power settings according to columns "T1" in table 8.2.4.17. The UE shall initiate the cell reselection procedure. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection" in cell 2. The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving a CELL UPDATE message. The UE then transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	This message does not include IE "Primary CPICH info"
2				The SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.4.17.
3			Void	
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		TRANSPORT CHANNELRECONFIGURATION COMPLETE	

Specific Message Contents

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CPICH info - Primary scrambling code	 Not Present

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (TDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions:

Information Element	Value/remark
Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	 Not present

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A for FDD and Annex A for TDD.

CELL UPDATE CONFIRM (Step 5)

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

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

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.4.17.5 Test requirement

After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5 UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

After step 6 UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.4.21 Transport Channel Reconfiguration from CELL_DCH to URA_PCH: Success

8.2.4.21.1 Definition

8.2.4.21.2 Conformance requirement

If the UE receives:

- a TRANSPORT CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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 TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 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 TS 25.331 subclause 8.6.3.2.

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

2> set the variable INVALID_CONFIGURATION to TRUE.

…

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;

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.

~~The UE shall transmits TRANSPORT CHANNEL RECONFIGURATION COMPLETE message after it receives a TRANSPORT CHANNEL RECONFIGURATION message which invoke the UE to transits from CELL_DCH to URA_PCH. And then, the UE shall enter URA_PCH state.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.4~~.

8.2.4.21.3 Test purpose

To confirm that the UE transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message and enters URA_PCH stateafter it received a TRANSPORT CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to URA_PCH.

8.2.4.21.4 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. The SS transmits a TRANSPORT CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to URA_PCH. The UE transmits a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state. The SS transmits a PAGING TYPE 1 message, causing the UE to enter CELL_FACH state. ~~and the UE shall transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "paging response".~~ SS calls for generic procedure C.5 to check that UE is in URA_PCH state.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		TRANSPORT CHANNEL RECONFIGURATION	
2	→		TRANSPORT CHANNEL RECONFIGURATION COMPLETE	
3				The UE is in URA_PCH state.
~~4~~	~~←~~		~~PAGING TYPE 1~~	~~The SS transmits this message included a matched identity.~~
~~5~~	~~→~~		~~Cell UPDATE~~	~~The UE is in CELL_FACH state.~~
4	←→		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

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient URA identity	3 Ref. to the Default setting in TS34.108 clause 6.1 (FDD)
~~Downlink information for each radio link~~ ~~- Primary CPICH info~~ ~~- Primary scrambling code~~	~~100~~

TRANSPORT CHANNEL RECONFIGURATION (Step 1) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex with following exceptions:

Information Element	Value/remark
RRC State Indicator UTRAN DRX cycle length coefficient URA identity ~~- Primary CCPCH info~~ ~~- Cell parameters ID~~	URA_PCH 3 Ref. to the Default setting in TS34.108 clause 6.1 (FDD) ~~4~~

~~PAGING TYPE 1 (Step 4)~~

~~Use the same message sub-type titled "TM (Packet in PS)" in default message content of TS 34.108 with following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Paging record list~~ ~~Paging record~~ ~~- CHOICE Used paging identity~~ ~~- U-RNTI~~ ~~- SRNC Identity~~ ~~- S-RNTI~~	~~UTRAN identity~~ ~~Previously assigned SRNC identity~~ ~~Previously assigned S-RNTI~~

~~CELL UPDATE (Step 5)~~

~~The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Cell Update Cause~~	~~"paging response"~~

8.2.4.21.5 Test requirement

After step 1 the UE shall transmit a TRANSPORT CHANNEL RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

~~After step 4 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "paging response".~~

8.2.6 Physical channel reconfiguration

8.2.6.1 Physical channel reconfiguration for transition from CELL_DCH to CELL_DCH (code modification): Success

8.2.6.1.1 Definition

8.2.6.1.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATIONmessage; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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.

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;

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.

~~The UE shall correctly reconfigure a physical channel according to the PHYSICAL CHANNEL RECONFIGURATION message, which indicates a hard handover procedure and transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.6~~.

8.2.6.1.3 Test purpose

To confirm that the UE reconfigures the physical channel parameters according to a PHYSICAL CHANNEL RECONFIGURATION message received from the SS. After the reconfiguration, the UE shall be able to communicate with the SS on the new physical channel.

8.2.6.1.4 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 to the CN domain(s) supported by the UE.

Test Procedure

The UE is in CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE, which includes a new several physical layer parameters~~UL scrambling code~~. The UE shall reconfigure the physical channel at the activation time specified in this message and transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH AM RLC after its transition. 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	←		PHYSICAL CHANNEL RECONFIGURATION	See message contents~~Including new UL scrambling code .~~
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

PHYSICAL CHANNEL RECONFIGURATION (FDD)

The contents of PHYSICAL CHANNEL 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 Annex A, with the following exceptions:

Information Element	Value/remark
Maximum allowed UL Tx power	31dBm
~~Activation Time~~	~~Current CFN-[current CFN mod 8 + 8]~~
Uplink DPCH info	
- Scrambling code number	1
Downlink information common for all radio links	
~~- Downlink DPCH info common for all RL~~	
~~- Timing Indicator~~	~~Maintain~~
Downlink information for each radio link	
- Code number	1

PHYSICAL CHANNEL RECONFIGURATION (TDD)

The contents of PHYSICAL CHANNEL 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 Annex A, with the following exceptions:

Information Element	Value/remark
~~Activation Time~~	~~Current CFN-[current CFN mod 8 + 8]~~
- Uplink DPCH timeslots and codes	
- First timeslot code list	Assigned by SS
Downlink information common for all radio links	Absent
~~- Downlink DPCH info common for all RL~~	
~~- Timing Indicator~~	~~Maintain~~

8.2.6.1.5 Test requirement

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

8.2.6.7 Physical channel reconfiguration for transition from CELL_DCH to CELL_FACH: Success

8.2.6.7.1 Definition

8.2.6.7.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

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

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

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

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

…

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;

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.

~~The UE shall correctly reconfigure a physical channel according to a PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to CELL_FACH and transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.6~~.

8.2.6.7.3 Test purpose

To confirm that the UE reconfigures a common physical channel according to the PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to CELL_FACH.

8.2.6.7.4 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. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE. The UE shall then reconfigure the specified common physical channel according to this message and the system information messages. Following this, it shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC on the DCCH. 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	←		PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration.
3	→		PHYSICAL CHANNEL RECONFIGURATION 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

PHYSICAL CHANNEL RECONFIGURATION

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exception:

Information Element	Value/remark
New C-RNTI	0000 0000 0000 0001B

8.2.6.7.5 Test requirement

After step 2 the UE shall transit from CELL_DCH to CELL_FACH and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE messageon the common physical channel.

8.2.6.8 Physical channel reconfiguration for transition from CELL_DCH to CELL_FACH: Success (Cell re-selection)

8.2.6.8.1 Definition

8.2.6.8.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_FACH state, the UE shall, after the state transition:

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

2> select a suitable UTRA cell according to TS 25.304 on that frequency.

1> 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):

2> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

2> when the cell update procedure completed successfully:

1> select PRACH according to TS 25.331 subclause 8.5.17;

1> select Secondary CCPCH according to TS 25.331 subclause 8.5.19;

1> use the transport format set given in system information;

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

2> ignore that IE and stop using DRX.

1> if the contents of the variable C_RNTI is empty:

2> perform a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "Cell reselection";

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

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;

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.

~~The UE shall initiate the cell update procedure when the UE performs cell reselection during a physical channel reconfiguration procedure. After the UE completes cell update procedure, the UE shall continue to perform the physical channel reconfiguration procedure and correctly reconfigure the physical channel.~~

Reference

3GPP TS 25.331 clause 8.2.2.3 , 8.2.2.4, 8.3.1.7~~8.2.6~~.

8.2.6.8.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION FAILURE message after the UE completes a cell update procedure.

8.2.6.8.4 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. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which includes IE "Primary CPICH info" and no dedicated physical channel information to invoke the UE to transit from CELL_DCH to CELL_FACH. As the UE cannot detect the specified cell, the UE shall initiate the cell update procedure. The UE transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving a CELL UPDATE message. The UE then transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1			Void	
2	←		PHYSICAL CHANNEL RECONFIGURATION	This message include IE "Primary CPICH info" for FDD and Primary CCPCH info for TDD.
3			Void	
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	See message content.
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (FDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exceptions:

Information Element	**Value/remark**
Downlink information for each radio links - Primary CPICH info - Primary scrambling code	 150

PHYSICAL CHANNEL RECONFIGURATION (Step 3) (TDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with the following exceptions:

Information Element	**Value/remark**
Downlink information for each radio links - Primary CCPCH info - Cell parameters ID	 4

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A for FDD and Annex A for TDD with the following exceptions:

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

CELL UPDATE CONFIRM (Step 5)

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

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

UTRAN MOBILITY INFORMATION CONFIRM (Step 6)

Only the message type is checked.

8.2.6.8.5 Test requirement

After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection".

After step 5 UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.

After step 6 UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.6.9 Physical channel reconfiguration for transition from CELL_FACH to CELL_DCH: Success

8.2.6.9.1 Definition

8.2.6.9.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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;

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.

~~The UE shall correctly reconfigure a physical channel according to a PHYSICAL CHANNEL RECONFIGURATION message, which invoke UE to transit from CELL_FACH to CELL_DCH and shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.6~~.

8.2.6.9.3 Test purpose

To confirm that the UE reconfigures a new physical channel according to a PHYSICAL CHANNEL RECONFIGURATION message, which invoke UE to transit from CELL_FACH to CELL_DCH.

8.2.6.9.4 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. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to transit from CELL_DCH to CELL_FACH. The UE shall reconfigure the common physical channel correctly according to this message. To complete this procedure, the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to invoke the UE to transit from CELL_FACH to CELL_DCH. The UE shall reconfigure the new dedicated physical channel correctly according to this message. To complete this procedure, the UE shall transmit 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	←		PHYSICAL CHANNEL RECONFIGURATION	IE "Uplink DPCH Info" and IE "Downlink DPCH Info" are not specified.
2				UE shall perform the reconfiguration.
3	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
4	←		PHYSICAL CHANNEL RECONFIGURATION	
5				The UE shall configure the allocated dedicated physical channels.
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

PHYSICAL CHANNEL RECONFIGURATION (Step 1)

Use the message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A for FDD and Annex A for TDD.

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the message sub-type titled "Packet to CELL_DCH from CELL_FACH in PS" in Annex A.

8.2.6.9.5 Test requirement

After step 2 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION message on the common physical channel.

After step 5 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION message on the new dedicated physical channel.

8.2.6.15 Void~~Physical channel reconfiguration for transition from CELL_FACH to CELL_FACH: Success~~

~~8.2.6.15.1 Definition~~

~~8.2.6.15.2 Conformance requirement~~

~~The UE shall correctly reconfigure a common physical channel in another cell according to a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_FACH in a current cell to CELL_FACH in the specified another cell.~~

~~Reference~~

~~3GPP TS 25.331 clause 8.2.2.3, 8.2.2.48.2.6~~

~~8.2.6.15.3 Test purpose~~

~~To confirm that the UE reconfigures a new common physical channel in another cell according to the PHYSICAL CHANNEL RECONFIGURATION message received from the SS.~~

~~8.2.6.15.4 Method of test~~

~~Initial Condition~~

~~System Simulator: 2 cells – Cell 1 and 2 are active.~~

~~UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108~~

~~Test Procedure~~

~~Table 8.2.6.15~~

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

~~Table 8.2.6.15 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 2.~~

~~The UE is in the CELL_FACH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_FACH in the current cell to CELL_FACH in cell 2, to the UE. The SS configures its downlink transmission power settings according to columns "T1" in table 8.2.6.15. The UE shall move to cell 2 and configure the common physical channel and transmit a PHYSICAL CHANNEL RECONFIGURATION~~

~~COMPLETE message using AM RLC on the DCCH. 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~~	~~←~~		~~PHYSICAL CHANNEL RECONFIGURATION~~	
~~2~~				~~The SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.2.6.15.~~
~~3~~	~~→~~		~~PHYSICAL CHANNEL RECONFIGURATION 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~~

~~PHYSICAL CHANNEL RECONFIGURATION (FDD)~~

~~Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions.~~

~~Information Element~~	~~Value/remark~~
~~Downlink information for each radio links~~ ~~- Primary CPICH info~~ ~~- Primary scrambling code~~	~~150~~

~~PHYSICAL CHANNEL RECONFIGURATION (TDD)~~

~~Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Downlink information for each radio links~~ ~~- Primary CCPCH info~~ ~~-Cell parameters ID~~	4

~~8.2.6.15.5 Test requirement~~

~~After step 2 the UE shall tranmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message in cell 2.~~

8.2.6.16 Physical channel reconfiguration for transition from CELL_FACH to CELL_FACH: (Cell re-selection)

8.2.6.16.1 Definition

8.2.6.16.2 Conformance requirement

If the UE was in CELL_FACH state upon reception of the reconfiguration message and remains in CELL_FACH state, the UE shall:

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

2> select a suitable UTRA cell according to TS 25.304 on that frequency;

2> 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):

3> initiate a cell update procedure according to TS 25.331 subclause 8.3.1 using the cause "cell reselection";

3> when the cell update procedure completed successfully:

4> proceed as below.

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;

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- includes "CN information elements"; or
- includes the IE "Ciphering mode info"; or
- includes the IE "Integrity protection mode info"; or
- includes the IE "New C-RNTI"; or
- includes the IE "New U-RNTI":

the UE shall:

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM as response message using AM RLC.

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.

~~The UE shall initiate the cell reselection procedure when the UE performs cell reselection during a physical channel reconfiguration procedure. After the UE completes cell update procedure, the UE shall continue to perform the physical channel reconfiguration procedure and correctly reconfigure the physical channel.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4, 8.3.1.7~~8.2.6~~

8.2.6.16.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after the UE completes a cell update procedure indicated by a PHYSICAL CHANNEL RECONFIGURATION message.

8.2.6.16.4 Method of test

Initial Condition

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

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108

Test Procedure

Table 8.2.6.16

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	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.2.6.16 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_FACH state in cell 1. The SS transmits~~On transmitting~~ a PHYSICAL CHANNEL RECONFIGURATION message, which does not include the IE "Primary CPICH info"". When receiving the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message sent by the UE on the uplink DCCH using AM RLC, the SS will not acknowledge the concerning RLC PDUs and~~, the SS~~ configures its downlink transmission power settings according to columns "T1" in table 8.2.6.16. The UE shall initiate the cell update procedure and transmits a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection" in cell 2. The SS shall transmit a CELL UPDATE CONFIRM message on downlink CCCH after receiving CELL UPDATE message. The UE transmits a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC and re-transmit the PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1	←		PHYSICAL CHANNEL RECONFIGURATION	This message does not include IE "Primary CPICH info" (FDD).
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	The SS~~UE~~ shall not acknowledge the received RLC PDU's and configure the~~detect a failure to~~ transmission power settings, according to the values in columns "T1" of table 8.2.6.16.
3			Void	
4	→		CELL UPDATE	The value "cell reselection" shall be set in IE "Cell update cause".
5	←		CELL UPDATE CONFIRM	
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	

Specific Message Contents

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (FDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A.~~ with the following exceptions:~~

~~**Information Element**~~	~~**Value/remark**~~
~~Downlink information for each radio links~~ ~~- Primary CPICH info~~ ~~- Primary scrambling code~~	 ~~Not Present~~

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (TDD)

Use the message sub-type titled "Packet to CELL_FACH from CELL_FACH in PS" in Annex A. ~~with the following exceptions:~~

~~**Information Element**~~	~~**Value/remark**~~
~~Downlink information for each radio links~~ ~~- Primary CCPCH info~~ ~~- Cell parameters ID~~	 ~~Not Present~~

CELL UPDATE (Step 4)

The contents of CELL UPDATE message is identical as "Contents of CELL UPDATE message" as found in Annex A for FDD and Annex A for TDD with the following exceptions:

Information Element	**Value/remark**
U-RNTI	
- SRNC Identity	Assigned previously in cell 1
- S-RNTI	Assigned previously in cell 1
Cell Update Cause	"cell reselection"

CELL UPDATE CONFIRM (Step 5)

The contents of CELL UPDATE CONFIRM message is identical as "CELL UPDATE CONFIRM message" as found in Annex A for FDD and Annex A for TDD. with the following exceptions:

Information Element	**Value/remark**
U-RNTI	Same as CELL UPDATE message in step 4
New U-RNTI	
- SRNC Identity	'0000 0000 0000 0001'
- S-RNTI	Different from previous S-RNTI
New C-RNTI	Different from previous C-RNTI

8.2.6.16.5 Test requirement

After step 3 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "cell reselection" in cell 2.

After step 5 the UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 6 the UE shall transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the DCCH using AM RLC.

8.2.6.19 Physical Channel Reconfiguration from CELL_DCH to CELL_PCH: Success

8.2.6.19.1 Definition

8.2.6.19.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

If after state transition the UE enters CELL_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 TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 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 TS 25.331 subclause 8.6.3.2.

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

  2> set the variable INVALID_CONFIGURATION to TRUE.

…

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;

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.

~~The UE shall transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after it receives a PHYSICAL CHANNEL RECONFIGURATION message which invokes the UE to transit from CELL_DCH to CELL_PCH. And then, the UE shall enter CELL_PCH state.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.6~~.

8.2.6.19.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and enter CELL_PCH state after it received a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to CELL_PCH.

8.2.6.19.4 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. The SS 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. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state.~~The SS transmits a PAGING TYPE 1 message, causing the UE to enter CELL_FACH state and the UE shall transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "paging response".~~

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3				The UE is in CELL_PCH state.
~~4~~	~~←~~		~~PAGING TYPE 1~~	~~The SS transmits this message with a matched identity.~~
~~5~~	~~→~~		~~CELL UPDATE~~	~~The UE is in CELL_FACH state.~~
4	←→		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 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
Downlink information for each radio link - Primary CPICH info - Primary scrambling code	 100

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (TDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator UTRAN DRX cycle length coefficient Downlink information for each radio links - Primary CCPCH info -Cell parameters ID	CELL_PCH 3 4

~~PAGING TYPE 1 (Step 4)~~

~~Use the same message sub-type titled "TM (Packet in PS)" in default message content of TS 34.108 with following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Paging record list~~	
~~Paging record~~	
~~- CHOICE Used paging identity~~	~~UTRAN identity~~
~~- U-RNTI~~	
~~- SRNC Identity~~	~~Previously assigned SRNC identity~~
~~- S-RNTI~~	~~Previously assigned S-RNTI~~

8.2.6.19.5 Test requirement

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

~~After step 4 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "paging response".~~

8.2.6.20 Physical Channel Reconfiguration from CELL_DCH to URA_PCH: Success

8.2.6.20.1 Definition

8.2.6.20.2 Conformance requirement

If the UE receives:

- a PHYSICAL CHANNEL RECONFIGURATION message; or

it shall:

1> perform the physical layer synchronisation procedure 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.

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 TS 25.304 on that frequency.

1> select Secondary CCPCH according to TS 25.331 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 TS 25.331 subclause 8.6.3.2.

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

2> set the variable INVALID_CONFIGURATION to TRUE.

…

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;

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.

~~The UE shall transmits PHYSICAL CHANNEL RECONFIGURATION COMPLETE message after it receives a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to URA_PCH. And then, the UE shall reconfigure radio bearers according to the PHYSICAL CHANNEL RECONFIGURATION message and enter URA_PCH state.~~

Reference

3GPP TS 25.331 clause 8.2.2.3, 8.2.2.4~~8.2.6~~.

8.2.6.20.3 Test purpose

To confirm that the UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and enter URA_PCH state after it received a PHYSICAL CHANNEL RECONFIGURATION message, which invokes the UE to transit from CELL_DCH to URA_PCH.

8.2.6.20.4 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 the CELL_DCH state. The SS transmits a PHYSICAL CHANNEL RECONFIGURATION message, which invoke the UE to transit from CELL_DCH to URA_PCH. The UE transmits a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message using AM RLC and enters URA_PCH state. SS calls for generic procedure C.5 to check that UE is in URA_PCH state.~~The SS transmits a PAGING TYPE 1 message, causing the UE to enter CELL_FACH state and the UE shall transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "paging response".~~

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		PHYSICAL CHANNEL RECONFIGURATION	
2	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	
3				The UE is in URA_PCH state.
~~4~~	~~←~~		~~PAGING TYPE 1~~	~~The SS transmits this message with a matched identity.~~
~~5~~	~~→~~		~~CELL UPDATE~~	~~The UE is in CELL_FACH state.~~
4	←→		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 1) (FDD)

Use the same message sub-type titled "Packet to CELL_FACH from CELL_DCH in PS" in Annex A with following exceptions:

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
URA Identity ~~Downlink information for each radio link~~ ~~- Primary CPICH info~~ ~~- Primary scrambling code~~	0000 0000 0000 0001B ~~100~~

PHYSICAL CHANNEL RECONFIGURATION (Step 1) (TDD)

Information Element	Value/remark
New C-RNTI	Not Present
RRC State Indicator UTRAN DRX cycle length coefficient	URA_PCH 3
URA Identity	0000 0000 0000 0001B
~~Downlink information for each radio links~~ ~~- Primary CCPCH info~~ ~~-Cell parameters ID~~	 4

~~PAGING TYPE 1 (Step 4)~~

~~Use the same message sub-type titled "TM (SMS in PS)" in Annex A for FDD and Annex A for TDD with following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~Paging record list~~ ~~Paging record~~ ~~- CHOICE Used paging identity~~ ~~- U-RNTI~~ ~~- SRNC Identity~~ ~~- S-RNTI~~	 ~~UTRAN identity~~ ~~Previously assigned SRNC identity~~ ~~Previously assigned S-RNTI~~

8.2.6.20.5 Test requirement

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

~~After step 4 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "paging response".~~

3GPP TSG-T1 Meeting #16 **_Tdoc T1-020545_**
Yokohama, Japan, 29th July – 1st August 2002

3GPP TSG-T1/SIG Meeting #24 **_Tdoc T1S-020463_**
Yokohama, Japan, 29th – 31th July 2002

CR-Form-v5.1

CHANGE REQUEST

⌘ **34.123-1** **CR** **284** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title: ⌘	Clarification of package 1 and 2 RB test cases.		
Source: ⌘	Ericsson		
Work item code: ⌘	TEI	***Date:*** ⌘	2002-07-25
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)*

Reason for change: ⌘

1. Principles for selecting test data size and UL RLC SDU size not described

2. Different radio bearer setup procedures need to be performed if radio bearer combination comprises radio bearers from more than domain (PS or CS).
TS 25.331 clause 8.6.4.2:
"1> if several IEs "RAB information for setup" are included and the included IEs
"CN domain identity" in the IE "RAB info" does not all have the same value:
2> set the variable INVALID_CONFIGURATION to TRUE."

3. Clarification of test procedure and test requirements for package 1 and 2 radio bearer test cases.

Summary of change: ⌘

Changes introduced between T1S-020419 and T1S-020463 are colour coded in yellow.

1. Changes to clauses: 14.1.1 and 14.1.2:
General principle for selecting test data size and UL RLC SDU size have been added in the notes to the generic test procedures.

2. Changes to 14.1.2:
Clarification added for the case when the radio berarer combination include radio bearers for both PS and CS domain:
- Text to step a) in test procedure added
- Comment added to step 9 of expected sequence
- Step 10a added to expected sequence

3.

a. Note has been added to sub-test table to clarify selected test data size and UL RLC SDU size.

Affected test cases: 14.2.26, 14.2.27, 14.2.29, 14.2.31.1, 14.2.32.1

b. Test requirement have been clarified for cases when the returned SDU size is not the same as the SDU size sent in downlink.

Affected test cases: 14.2.27, 14.2.29, 14.2.31.1, 14.2.32.1

c. Test requriement wording have been changed to be consistent with test method for multiple radio bearers (changed wording stating “an RLC SDU” to “RLC SDUs”)

Affected test cases: 14.2.40 and 14.2.41

Consequences if not approved:	⌘	Inconsistent test requirements.

Clauses affected:	⌘	14.2.26, 14.2.27, 14.2.29, 14.2.31.1, 14.2.32.1, 14.2.40, 14.2.41		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ 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>

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~~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. 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.

NOTE 2: Selection of UL RLC SDU size parameter:
For the case when the reference radio bearer configuration under test uses RLC transparant 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~~2~~: 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 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.

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

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 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
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

14.1.2 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 PS radio bearer(s). If only one physical channel is used then the second radio bearer setup procedure shall not perform any physical channel configuration, but only perform the transport channel configuration of the additional CS radio bearer(s) as well as map these transport channels to the existing physical channel.

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~~2~~.

e) The SS waits the time T1 equal to 12 times the largest TTI. See n~~N~~ote 4~~3~~

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.

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, 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~~2~~: 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 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 4~~3~~: [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.

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

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 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 In case the reference radio bearer configuration includes radio bearers for both PS and CS domain then the physical channel and PS radio bearer(s) are configured in the first RADIO BEARER SETUP message. CS radio bearer(s) are configured in a second RADIO BEARER SETUP message, see step 10a.
10	-->		RADIO BEARER SETUP COMPLETE (DCCH)	RRC
10a				In case the reference radio bearer configuration includes radio bearers for both PS and CS domain then repeat steps 9 and 10 to configure the CS radio bearer(s)
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
14a	<-- -->		Test data	SS sends continues test data in every TTI using the downlink transport format combination under test. The number of RLC SDUs and their sizes are specified in the actual test case. SS checks returned data
14b			Wait T1	SS continue to send data every TTI and check the returned data for time T1 T1 = 12 times the max TTI in the actual radio bearer combination under test
15a	<-- --> <--		Test data (DTCH) + MEASUREMENT CONTROL (DCCH)	SS continues sending test data in every TTI. SS sends a MEASUREMENT CONTROL message simultaneously to the test data requesting periodic reporting at interval T2
15b	<-- --> -->		Test data (DTCH) + MEASUREMENT REPORT (DCCH)	SS continue to send data in every TTI and check the returned data for time 2xT2 SS checks that at least one MEASUREMENT REPORT message is received
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 (DCCH)	RRC Optional step
20	<--		DEACTIVATE RB TEST MODE (DCCH)	TC Optional step
21	-->		DEACTIVATE RB TEST MODE COMPLETE (DCCH)	TC Optional step

<End of modified section>

<Start of next modified section>

14.2.26 Interactive or background / UL:64 DL: 64 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.26.1 Conformance requirement

See 14.2.4.1.

14.2.26.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.26.

14.2.26.3 Method of 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)

Downlink 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

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	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 952	RB5: 952
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 1272	RB5: 1272
NOTE: 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.

14.2.26.4 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).
    - for sub-test 3: RB5/TF3 (3x336).
    - for sub-test 4: RB5/TF4 (4x336).
3. At step 15 the UE shall return
    - for sub-test 1 to 4: an RLC SDU on RB5 having the same content as the DL RLC SDU sent by the SS.

14.2.27 Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.27.1 Conformance requirement

See 14.2.4.1.

14.2.27.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.27.

14.2.27.3 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 (128 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

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	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE:	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.

14.2.27.4 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).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1, 2 and~~to~~ 4: 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.

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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	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
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_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_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_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_TFC3, UL_TFC5, UL_TFC8	RB5: 2872	RB5: 2872
NOTE: 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).
   - for sub-test 3: RB5/TF3 (4x336).

- for sub-test 4: RB5/TF4 (8x336).
- for sub-test 5: RB5/TF3 (4x336).

3. At step 15 the UE shall return

   - for sub-test 1,2,4 and ~~to~~ 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.

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14.2.31.1 Interactive or background / UL:64 DL:256 kbps / PS RAB + UL:3.4 DL: 3.4 kbps SRBs for DCCH/ 10 ms TTI

14.2.31.1.1 Conformance requirement

See 14.2.4.1.

14.2.31.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.31 for the downlink 10 ms TTI case.

14.2.31.1.3 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 (256 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

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	(TF0, TF1)
DL_TFC6	(TF1, TF1)
DL_TFC7	(TF2, TF1)
DL_TFC8	(TF3, TF1)
DL_TFC9	(TF4, TF1)

Sub-tests:

Sub-test	Downlink TFCS Under test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
1	DL_TFC1	UL_TFC1	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC1, UL_TFC5, UL_TFC6	RB5: 312	RB5: 312
2	DL_TFC2	UL_TFC2	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC2, UL_TFC5, UL_TFC7	RB5: 632	RB5: 632
3	DL_TFC3	UL_TFC3	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC3, UL_TFC5, UL_TFC8	RB5: 1912	RB5: 1272
4	DL_TFC4	UL_TFC4	DL_TFC0, DL_TFC5, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
NOTE: 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.

14.2.31.1.4 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).
   - for sub-test 3: RB5/TF3 (3x336).
   - for sub-test 4: RB5/TF4 (4x336).
3. At step 15 the UE shall return
   - for sub-test 1,2 and ~~to~~ 4: 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.

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14.2.32.1 Interactive or background / UL:64 DL:384 kbps / PS RAB / 10 ms TTI

14.2.32.1.1 Conformance requirement

See 14.2.4.1.

14.2.32.1.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.32 for the 10 ms TTI case.

14.2.32.1.3 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 (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

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	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
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_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_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_TFC4, UL_TFC5, UL_TFC9	RB5: 2552	RB5: 2552
5	DL_TFC5	UL_TFC4	DL_TFC0, DL_TFC6, UL_TFC0, UL_TFC5	UL_TFC0, UL_TFC4, UL_TFC5, UL_TFC9	RB5: 3832	RB5: 3832
NOTE: 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.

14.2.32.1.4 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).
   - for sub-test 3: RB5/TF3 (3x336).

  - for sub-test 4 and 5: RB5/TF4 (4x336).

3. At step 15 the UE shall return

  - for sub-test 1,2,4 and ~~to~~ 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.

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14.2.40 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:64 kbps / PS RAB+ UL:3.4 DL: 3.4 kbps SRBs for DCCH

14.2.40.1 Conformance requirement

See 14.2.4.1.

14.2.40.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.40.

14.2.40.3 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 (64 kbps, 20 ms TTI)**	**DCCH**
TFS	TF0, bits	0x81(alt. 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

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 (64 kbps, 20 ms TTI)	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**	**UL RLC SDU size (bits)** (note)	**Test data size (bits)** (note)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, 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_TFC2, 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_TFC3, UL_TFC15, UL_TFC18	RB5: 39 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, DUL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, 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_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_TFC6, UL_TFC15, UL_TFC21	RB5: 39 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_TFC15	UL_TFC0, UL_TFC1, 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
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, 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_TFC9, UL_TFC15, UL_TFC24	RB5: 39 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_TFC15	UL_TFC0, UL_TFC1, 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

Sub-test	Downlink TFCS Under Test	Uplink TFCS Under test	Implicitely tested	Restricted UL TFCIs	UL RLC SDU size (bits) (note)	Test data size (bits) (note)
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, 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_TFC12, UL_TFC15, UL_TFC27	RB5: 39 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_TFC15	UL_TFC0, UL_TFC1, 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
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, 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:	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~~S 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 payload size of the UL~~uplink~~ TF~~S size~~ under test minus 8 bits (size of 7 bit length indicator and expansion bit).					

14.2.40.4 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 SDUs 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 SDUs 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 SDUs 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 SDUs 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 SDUs 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.

14.2.41 Conversational / speech / UL:12.2 DL:12.2 kbps / CS RAB + Interactive or background / UL:64 DL:128 kbps / PS RAB + UL:3.4 DL:3.4 kbps SRBs for DCCH

14.2.41.1 Conformance requirement

See 14.2.4.1.

14.2.41.2 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.1.41.

14.2.41.3 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 (64 kbps, 20 ms TTI)	DCCH
TFS	TF0, bits	0x81(alt. 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

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 (128 kbps, 20 ms TTI)	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	4x336	N/A
	TF4, bits	N/A	N/A	N/A	8x336	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**	**UL RLC SDU size (bits)** (note)	**Test data size (bits)** (note)
1	DL_TFC1, DL_TFC16	UL_TFC1, UL_TFC16	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, 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_TFC2, 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_TFC3, UL_TFC15, UL_TFC18	RB5: 39 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, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, 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_TFC2, UL_TFC3, UL_TFC5, UL_TFC15, UL_TFC17, UL_TCF18, 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_TFC6, UL_TFC15, UL_TFC21	RB5: 39 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_TFC15	UL_TFC0, UL_TFC1, 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
8	DL_TFC8, DL_TFC23	UL_TFC8, UL_TFC23	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, 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_TFC9, UL_TFC15, UL_TFC24	RB5: 39 RB6: 103 RB7: 60 RB8: 952	RB5: No data RB6: No data RB7: No data RB8: 1272
10	DL_TFC10, DL_TFC25	UL_TFC10, UL_TFC25	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, 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: 1272

Sub-test	**Downlink TFCS Under Test**	**Uplink TFCS Under test**	**Implicitely tested**	**Restricted UL TFCIs**	**UL RLC SDU size (bits)** (note)	**Test data size (bits)** (note)
11	DL_TFC11, DL_TFC26	UL_TFC11, UL_TFC26	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, 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: 1272
12	DL_TFC12, DL_TFC27	UL_TFC12, UL_TFC27	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC12, UL_TFC15, UL_TFC27	RB5: 39 RB6: 103 RB7: 60 RB8: 1272	RB5: No data RB6: No data RB7: No data RB8: 2552
13	DL_TFC13, DL_TFC28	UL_TFC13, UL_TFC28	DL_TFC0, DL_TFC15, , UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC1, 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: 2552
14	DL_TFC14, DL_TFC29	UL_TFC14, UL_TFC29	DL_TFC0, DL_TFC15, UL_TFC0, UL_TFC15	UL_TFC0, UL_TFC2, 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: 2552

NOTE: 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~~S 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 payload size of the ~~uplink~~UL TF~~S size~~ under test minus 8 bits (size of 7 bit length indicator and expansion bit).

14.2.41.4 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 SDUs 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 SDUs 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: ~~an~~ RLC SDUs 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: ~~an~~ RLC SDUs 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: ~~an~~ RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
    - for sub-test 6: ~~an~~ RLC SDUs on RB8 having the same content as sent by SS; and no data shall be received on RB5, RB6 and RB7.

- for sub-test 7: ~~an~~ RLC SDUs 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 8: ~~an~~ RLC SDUs on RB5, RB6, RB7 and RB8 having the same content as sent by SS.
- for sub-test 9: ~~an~~ RLC SDUs on RB8 having the first 952 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 10: ~~an~~ RLC SDUs on RB8 having the first 952 bits equal to the content of the test data sent by the SS in downlink; an RLC SDU on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 11: ~~an~~ RLC SDUs on RB8 having the first 952 bits equal to the content of the test data sent by the SS in downlink; ~~an~~ RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.
- for sub-test 12: ~~an~~ RLC SDUs on RB8 having the first 1272 bits equal to the content of the test data sent by the SS in downlink; and no data shall be received on RB5, RB6 and RB7.
- for sub-test 13: ~~an~~ RLC SDUs on RB8 having the first 1272 bits equal to the content of the test data sent by the SS in downlink; ~~an~~ RLC SDUs on RB5 having the same content as sent by SS; and no data shall be received on RB6 and RB7.
- for sub-test 14: ~~an~~ RLC SDUs on RB8 having the first 1272 bits equal to the content of the test data sent by the SS in downlink; ~~an~~ RLC SDUs on RB5, RB6 and RB7 having the same content as sent by SS.

4. At step 15b the UE shall send at least one MEASUREMENT REPORT message.

<End of modified section>

3GPP TSG-T1 Meeting #16 **_Tdoc ⌘T1-020546_**
Yokohama, Japan, 2nd August 2002

3GPP TSG-T1 SIG Meeting #24 **_Tdoc ⌘T1S-020535_**
Yokohama, Japan, 29th – 31st July 2002

CR-Form-v7

CHANGE REQUEST

⌘ **34-123-1 CR 285** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

*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:	⌘	Details of radio bearer tests in clause “14.4 Combinations on SCCPCH” and “14.5 Combinations on PRACH”
Source:	⌘	Nokia, Ericsson
Work item code:	⌘	TEI
Date:	⌘	22/07/2002
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: ⌘ Test cases in clause 14.4 and 14.5.1 are incomplete

Summary of change: ⌘ Details of the test cases are added in clause 14.4

Updated after comments from Ericsson:

- Note added to test case 14.5.1 that it is implicitly tested.
- Test cases aligned to changes presented in T1S-020399.

Consequences if not approved: ⌘ Test cases in clause 14.4 are incomplete and therefore it is not possible to draft a corresponding TTCN test cases.

Clauses affected: ⌘ 14.4.2, 14.4.3, 14.4.4, 14.5.1

Other specs Affected: ⌘

Y	N		
	X	Other core specifications ⌘	34.123-2, 34.123-3
X		Test specifications	
	X	O&M Specifications	

Other comments: ⌘ Applicable to R99 and later 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.

14.4 Combinations on SCCPCH

14.4.1 Stand-alone signalling RB for PCCH

Impicitely tested.

NOTE The stand-alone signalling radio bearer for PCCH in TS 34.108, clause 6.10.2.4.3.1 is used in RRC test case 8.1.2.2.

14.4.2 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 6.10.2.4.3.2.

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.

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

   This configuration is verified in test case 14.4.2.1.

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 Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH.

   This configuration is verified in test case 14.4.2.2.

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 Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

   This configuration is verified in test case 14.4.2.3.

14.4.2.1 One SCCPCH: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2.1.1 Conformance requirement

See 14.2.4.1.

14.4.2.1.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.1 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 Interactive/Background 32 kbps PS RAB 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 6.10.2.4.4.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2.1.3 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.

Uplink TFS:

	TFI	RB7+SRB (32kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	RB7 (32 kbps)
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	(SRB, RB7)
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	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: 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).						

See 14.1.1 for test procedure.

14.4.2.1.4 Test Requirements

See 14.1.1 for definition of step 15

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

14.4.2.2 Two SCCPCHs: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2.2.1 Conformance requirement

See 14.2.4.1.

14.4.2.2.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.1 for the case when 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 Interactive/Background 32 kbps PS RAB 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 6.10.2.4.4.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2.2.3 Method of Test

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

Uplink TFS:

	TFI	**RB7+SRB (32kbps on RACH)**
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	**RB7+SRB**
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	**RB7 (32 kbps)**
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	**(SRB, RB7)**
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	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: 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).						

See 14.1.1 for test procedure.

14.4.2.2.4 Test Requirements

See 14.1.1 for definition of step 15

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

14.4.2.3 One SCCPCH/connected mode: Interactive/Background 32 kbps PS RAB + SRBs for CCCH + SRB for DCCH + SRB for BCCH

14.4.2.3.1 Conformance requirement

See 14.2.4.1.

14.4.2.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.2 and 6.10.2.4.4.1 for the case when 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 Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

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 6.10.2.4.4.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.2.3.3 Method of Test

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

Uplink TFS:

	TFI	RB7+SRB (32kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB7+SRB
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		SRBs	**RB7 (32 kbps)**
TFS	TF0, bits	0x168	0x360
	TF1, bits	1x168	1x360
	TF2, bits	2x168	N/A

Downlink TFCS:

TFCI	**(SRB, RB7)**
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	RB7: 312 bits
NOTE: See TS 34.109 [10] clause 5.3.2.6.2 for details regarding loopback of RLC SDUs. RB7: 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).						

See 14.1.1 for test procedure.

14.4.2.3.4 Test Requirements

See 14.1.1 for definition of step 15

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

14.4.3 Interactive/Background 32 kbps RAB + SRBs for PCCH + SRB for CCCH + SRB for DCCH + SRB for BCCH

14.4.3.1 Conformance requirement

See 14.2.4.1.

14.4.3.2 Test purpose

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.3 and 6.10.2.4.4.1 for the case when one SCCPCH is used in this SYSTEM INFORMATION (BCCH) configuration. The SCCPCH carries the PCH, the FACH for Interactive/Background 32 kbps PS RAB 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 6.10.2.4.4.1 (Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH on PRACH) is used in uplink.

14.4.3.3 Method of Test

The contents of System Information Block type 5 and 6 shall be as specified in TS 34.108, clause 6.1.

Uplink TFS:

	TFI	RB8 (32kbps on RACH)
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	RB8
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		PCCH	SRBs	RB8 (32 kbps)
TFS	TF0, bits	0x240	0x168	0x360
	TF1, bits	1x240	1x168	1x360
	TF2, bits	N/A	2x168	N/A

Downlink TFCS:

TFCI	(PCCH, SRB, RB8)
DL_TFC0	(TF0, TF0, TF0)
DL_TFC1	(TF1, TF0, TF0)
DL_TFC2	(TF0, TF1, TF0)
DL_TFC3	(TF1, TF1, TF0)
DL_TFC4	(TF0, TF2, TF0)
DL_TFC5	(TF1, TF2, TF0)
DL_TFC6	(TF0, TF0, TF1)
DL_TFC7	(TF0, 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_TFC6	UL_TFC1	DL_TFC0, UL_TFC0	UL_TFC1, UL_TFC0	RB8: 312 bits	RB8: 312 bits
NOTE: 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 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).						

See 14.1.1 for test procedure.

14.4.3.4 Test requirements

See 14.1.1 for definition of step 15

1. At step 15 the UE transmitted transport format shall be RB8/TF1 (1x360).

2. At step 15 the UE shall return an RLC SDU on RB8 having the same content as sent by SS

14.4.4 RB for CTCH + SRB for CCCH +SRB for BCCH.

14.4.4.1 Definition and applicability

Applicable only for a UE supporting Cell Broadcast Services (CBS) as a type of Broadcast/Multicast Services.

It shall be possible to indicate the reception of certain CBS message contents carried with certain activated CG message types in a clear way on UE side.

14.4.4.2 Conformance Requirement

See 14.2.4.1 and 7.4.2.1.2.

14.4.4.3 Test purpose

Test to verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.3.4 for the case when 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 Interactive/Background 32 kbps PS RAB and the FACH for SRBs on CCCH/ DCCH/ BCCH for connected mode UEs.

To verify establishment and data transfer of reference radio bearer configuration as specified in TS 34.108, clauses 6.10.2.4.3.3. Data transfer on CTCH is tested similar to testing BMC for a UE in idle mode as specified in TS 34.123-1, clause 7.4.2, data transfer on CCCH is tested by establishing a RRC connection.

14.4.4.4 Method of Test

Initial conditions:

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

The UE is RRC idle mode, the BMC entity is established.

The CB message ID stored on the SIM shall be known for this test (parameter for CBS PDUs). The CBS data type shall be allocated and activated in the UE.

Related ICS/IXIT Statement(s)

As in clause 7.4.2.1.4

Uplink TFS:

	TFI	**RB7+SRB (32 kbps on RACH)**
TFS	TF0, bits	1x168
	TF1, bits	1x360

Uplink TFCS:

TFCI	**RB7+SRB**
UL_TFC0	TF0
UL_TFC1	TF1

Downlink TFS:

		RB7 (32 kbps on CTCH)	**SRBs**
TFS	TF0, bits	0x168	0x168
	TF1, bits	1x168	1x168

Downlink TFCS:

TFCI	**(RB7, SRB)**
DL_TFC0	(TF0, TF0)
DL_TFC1	(TF1, TF0)
DL_TFC2	(TF0, TF1)

Test Procedure:

a) The UE in RRC Idle mode is triggered to wait for the next system information. The UE is activated to receive CBS messages.

b) The UE and the SS have configured their RLC, MAC, and PHYs layers with all CB related system information.

c) The SS sends the CVS message containing an activated CGS message type accroding to CB-Data 1 to the UE; this shall be repeated for CPREP times (indicated by the parameter “repetition period”).

d) The UE indicates in an unambigous way, that this message was received.

Steps 1 – 4 in the Expected sequence are followed by the steps 2 – 6 of the test procedure according to clause 14.1.1.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1	←		SYSTEM INFORMATION	
2				The SS waits for about 10 s to make sure, that the UE is configured to receive CBS data
3	←		BMC CBS Message	Activated CBS message with CB Data 1 message content as described by the manufacturer. This message shall be repeated "CPREP" times, Parameter: - Message_ID, - Serial-No, - Data coding scheme, - CB-Data 1,
4				After having received the BMC CBS message the UE shall indicate the reception of CB Data 1 in a clear way.

14.4.4.5 Test Requirements

At step 4 in the table above, the UE shall store and decode a received activated CBS message.

At step 5 of the test procedure according to clause 14.1.1 the RRC Connection shall be established.

14.5 Combinations on PRACH

14.5.1 Interactive/Background 32 kbps PS RAB + SRB for CCCH + SRB for DCCH

The reference radio bearer configuration as specified in TS 34.108, clause 6.10.2.4.4.1 is implicitely tested by the test cases 14.4.2.1, 14.4.2.2, 14.4.2.3 and 14.4.3.

15 Supplementary Services

This clause is FFS.

3GPP TSG–T1 Meeting #16
Yokohama, Japan, July 29 – Aug 2, 2002
3GPP TSG-T1/SIG Meeting #24
Yokohama, Japan, July 29th-31st, 2002

Tdoc T1-020556

Tdoc T1S-020496

CR-Form-v5.1

CHANGE REQUEST

⌘ **34.123-1** **CR** **295** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to 34.123-1 REL-5; Corrections and modifications to clause 9 of Package 2 test cases (MM)
Source:	⌘	Ericsson, FUJITSU LIMITED
Work item code:	⌘	TEI
Date:	⌘	31/07/2002
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)*

Reason for change: ⌘

The NAS test cases need to be aligned in respect to inclusion of RRC signalling. The RRC messages do not in general need to be shown explicitely. There should be enough with instructions in the Comments column of the Expected sequence

The concept of "Main signalling link" is specific for GSM and the RRC connection release procedure differs from the GSM RR connection release. A clean-up is therefore necessary.

It is necessary to correct some test cases in order to keep consistency with the changes in TS 24.008.

Summary of change: ⌘

RRC messages where removed and replaced with comment column instructions to the SS: E.g. "The SS starts integrity protection", "The SS releases the RRC connection", "The SS checks that the value of the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "XXX" ".

Anywhere the SS should wait for the UE to be in service after entering idle mode, the time is set to 5 seconds.

In 9.4.4: The concept of "RR connection" in TS 24.008 does not correspond to "RRC connection", rather to "CS signalling connection" if there were such a term. "RRC connection" is therefore replaced with "RR connection" where applicable to align with TS 24.008. In the Expected sequence, the RRC message SIGNALLING CONNECTION RELEASE REQUEST was renamed to SIGNALLING CONNECTION RELEASE INDICATION.

		In clause 9.4.2.3, Conformance requirement, Initial conditions, Test procedure, Expected sequence and Test requirement are updated. In clause 9.4.2.5, Conformance requirement, Initial conditions, Expected sequence and Test requirement are updated.
Consequences if not approved:	⌘	The test prose cannot test the UE correctly.

Clauses affected:	⌘	9.1.4, 9.2.1.4, 9.2.2.4, 9.3.1.4.1-2, 9.4.1.4, 9.4.2.1.4, 9.4.2.2.4.1-2, 9.4.2.3.2, 9.4.2.3.4, 9.4.2.3.5, 9.4.2.4.4, 9.4.2.5.2, 9.4.2.5.4, 9.4.2.5.5, 9.4.4.2-4, 9.4.5.2.4, 9.4.5.3.4, 9.4.5.4.1.4, 9.4.8.4, 9.4.9.4, 9.5.2.4		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS 34.123-2
Other comments:	⌘	Affects R99, 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.

9 Elementary procedures of mobility management

The tests are based on TS 24.008.

In this clause, when the expected sequence require that "a mobile originated CM connection is attempted", it shall be for a service other than emergency call.

In this clause, a initial CM message is either a SETUP message, a REGISTER message or a CP-DATA message (in that case the acknowledged mode of operation on SAPI 3 will have be established and this message will be sent on SAPI 3).

9.1 TMSI reallocation

The intention of the TMSI Reallocation procedure is to assign a new temporary identity for the UE. If the message is not understood by the UE, the network could not establish a link to the UE. As this is a common MM procedure, it can be initiated at any time.

9.1.1 Definition

9.1.2 Conformance requirement

1) A UE shall acknowledge a new TMSI when explicitly allocated during a location updating procedure or an incoming call.
2) The TMSI shall be updated on the USIM when the UE is correctly deactivated in accordance with the manufacturer's instructions.
3) A UE shall answer paging with this TMSI and includes it in the PAGING RESPONSE message.

Reference(s)

TS 24.008 clause 4.3.1.

9.1.3 Test purpose

To verify that the UE is able to receive and acknowledge a new TMSI by means of an explicit TMSI reallocation procedure.

To verify that the UE has stored the TMSI in a non-volatile memory.

The implicit reallocation procedure is tested in clause 9.4.1.

9.1.4 Method of test

Initial conditions

- System Simulator:
  - two cells A and B, belonging to different location areas a and b, default parameters.
- User Equipment:
  - the UE has valid TMSI (= TMSI1), CKSN, CK, IK. It is "idle updated" on cell B.

Related ICS/IXIT statement(s)

Switch off button Yes/No.

Way to bring the UE into service.

Test Procedure

The UE is paged in cell B and the security mode is established. An explicit TMSI reallocation procedure is performed. The RRC CONNECTION is released. The UE is switched off and then its power supply is interrupted for 10 s. The power supply is resumed and then the UE is switched on and allowed sufficient time to guarantee that the UE is in service (listening to its paging subchannel). The system simulator then checks, by paging, whether the UE has stored the received TMSI.

The UE is made to select cell A. A normal location updating procedure is performed in cell A. An explicit TMSI reallocation procedure is performed and then the location updating procedure is accepted by the SS. The system simulator checks, by paging, whether the UE has stored the allocated TMSI.

Expected sequence

Step	**Direction** **UE SS**	**Message**	**Comments**
The following messages are sent and shall be received on cell B.			
1	←	Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" = TMSI1. Establishment Cause: Terminating Conversation Call.
2	→	PAGING RESPONSE	"Mobile identity" =TMSI1
2a	←	AUTHENTICATION REQUEST	
2b	→	AUTHENTICATION RESPONSE	
3	~~←~~SS	~~SECURITY MODE COMMAND~~	The SS starts integrity protection.
4	~~→~~	~~SECURITY MODE COMPLETE~~Void	
5	←	TMSI REALLOCATION COMMAND	"Mobile identity" = new TMSI (TMSI2) different from TMSI 1.
6	→	TMSI REALLOCATION COMPLETE	
7	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
8	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
9	UE		If possible (see ICS), the UE is switched off.
9a	UE		The power supply is interrupted for 10 s.
10	UE		The UE is switched on.
11	SS		The SS waits for 5 seconds ~~an amount of time which is enough~~ to guarantee that the UE is in service (listening to its paging subchannel).
12	←	Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" = TMSI2. Establishment Cause: Terminating Conversation Call.
13	→	PAGING RESPONSE	"Mobile identity" =TMSI2.
14	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection. The following messages are sent and shall be received on cell A
15	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
16	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)
17	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE “Establishment cause” ~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
18	~~←~~	~~RRC CONNECTION SETUP~~Void	
19	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
20	→	LOCATION UPDATING REQUEST	location updating type = normal, "ciphering key sequence number" = CKSN, LAI = b, "mobile identity" = TMSI2.
20a	←	AUTHENTICATION REQUEST	
20b	→	AUTHENTICATION RESPONSE	
20c	~~←~~SS	~~SECURITY MODE COMMAND~~	The SS starts integrity protection.
20d	~~→~~	~~SECURITY MODE COMPLETE~~Void	
21	←	TMSI REALLOCATION COMMAND	TMSI = TMSI1.
22	→	TMSI REALLOCATION COMPLETE	
23	←	LOCATION UPDATING ACCEPT	This message does not contain the optional Mobile Identity field.
24	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link. The SS waits an amount of time which is enough to guarantee that the UE is "idle updated" on cell A.~~ The SS releases the RRC connection.

Step	Direction	Message	Comments
	UE SS		
25	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
25a			The SS waits for 5 seconds to allow the UE to become "idle updated" on cell A.
26	←	Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" IE contains the new TMSI (= TMSI1). "Establishment cause": Terminating Conversational Call.
27	→	PAGING RESPONSE	"Mobile identity" IE contains the new TMSI (= TMSI1).
28	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
29	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~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.

9.1.5 Test requirement

At step 5 the UE shall receive and acknowledge a new TMSI (TMSI2) and has stored that in the USIM, and the UE is switched off and on after step 9 and 10.

At step 13 the UE shall transmit a new TMSI2 and includes it in the PAGING RESPONSE message.

At step 27 the UE shall answer paging with this TMSI1 and includes it in the PAGING RESPONSE message.

9.2 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.

The SS shall be able to handle vectors of AUTN, RAND, CK, IK, AUTS and XRES in a similar way as the MSC/BSS entities. The SS and test USIM shall incorporate a test algorithm for generating RES and CK, IK from RAND, AUTN and IK which operates as described in TS 34.108 clause 8.1.2.

9.2.1 Authentication accepted

9.2.1.1 Definition

9.2.1.2 Conformance requirement

1) A UE shall correctly respond to an AUTHENTICATION REQUEST message by sending an AUTHENTICATION RESPONSE message with the RES information field set to the same value as the one produced by the authentication algorithm in the network.

2) A UE shall indicate in a PAGING RESPONSE message the ciphering key sequence number which was allocated to it through the authentication procedure.

Reference(s)

TS 24.008 clauses 4.3.2.2 and 4.3.2.4.

9.2.1.3 Test purpose

1) To check that a UE correctly responds to an AUTHENTICATION REQUEST message by sending an AUTHENTICATION RESPONSE message with the RES information field set to the same value as the one produced by the authentication algorithm in the network.

2) To check that a UE indicates in a PAGING RESPONSE message the ciphering key sequence number which was allocated to it through the authentication procedure.

9.2.1.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has valid TMSI, CKSN (CKSN1), CK, IK. It is "idle updated" on the cell.

Related ICS/IXIT statement(s)

None.

Test Procedure

The UE is paged. After the UE has sent a PAGING RESPONSE message to the SS, the SS initiates an authentication procedure and checks the value RES sent by the UE in the AUTHENTICATION RESPONSE message. The RRC CONNECTION is released. The UE is paged and the SS checks the value of the ciphering key sequence number sent by the UE in the PAGING RESPONSE message.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
2	→		PAGING RESPONSE	CKSN = CKSN1
3	←		AUTHENTICATION REQUEST	The SS initiates authentication with CKSN2 different from CKSN1.
4	→		AUTHENTICATION RESPONSE	"Auth. parameter RES" IE shall be bit exact with the value as produced by the authentication algorithm.
5	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link. The SS waits an amount of time which is enough to guarantee that the UE is in service.~~The SS releases the RRC connection.
6	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
6a				The SS waits for 5 seconds to guarantee that the UE is in service.
7			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
8	→		PAGING RESPONSE	"Ciphering key sequence number" shall be the same as the value that was sent in the last AUTHENTICATION REQUEST message (= CKSN2).
9	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
10	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	

Specific message contents

None.

9.2.1.5 Test requirement

1) At step 4 the UE shall send an AUTHENTICATION RESPONSE message with the RES information field set to the same value as the XRES calculated by the SS.

2) At step 8 the UE shall indicate in a PAGING RESPONSE message the ciphering key sequence number which was allocated to it through the authentication procedure.

9.2.2 Authentication rejected by the network

9.2.2.1 Definition

9.2.2.2 Conformance requirement

1) After reception of an AUTHENTICATION REJECT message the UE shall:

   1.1 not perform normal location updating;

   1.2 not perform periodic location updating;

   1.3 not respond to paging with TMSI;

   1.4 reject any request from CM entity for MM connection except for emergency call;

   1.5 not perform IMSI detach if deactivated.

2) After reception of an AUTHENTICATION REJECT message the UE, if it supports speech, 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) After reception of an AUTHENTICATION REJECT message the UE shall delete the stored LAI, CKSN and TMSI.

Reference(s)

TS 24.008 clause 4.3.2.5.

9.2.2.3 Test purpose

1) To check that ,after reception of an AUTHENTICATION REJECT message, the UE:

   1.1 does not perform normal location updating;

   1.2 does not perform periodic location updating;

   1.3 does not respond to paging with TMSI;

   1.4 rejects any request from CM entity for MM connection except for emergency call;

   1.5 does not perform IMSI detach if deactivated.

2) To check that, after reception of an AUTHENTICATION REJECT message the UE, if it supports speech, accepts a request for an emergency call by sending a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call" and includes an IMEI as mobile identity in the CM SERVICE REQUEST message.

3) To check that, after reception of an AUTHENTICATION REJECT message and after having been deactivated and reactivated, the UE performs location updating using its IMSI as mobile identity and indicates deleted LAI and CKSN.

9.2.2.4 Method of test

Initial conditions

- System Simulator:
    - two cells: A and B, belonging to different location areas a and b;
    - 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, CKSN (CKSN2) , CK and IK. It is "idle updated" on cell B.

Related ICS/IXIT statement(s)

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

Support of speech Yes/No.

Test procedure

The SS rejects an authentication. The RRC CONNECTION is released. The SS checks that the UE has entered the state MM IDLE substate NO IMSI, i.e. does not perform normal location updating, does not perform periodic updating, does not respond to paging, rejects any requests from CM entities except emergency calls and does not perform IMSI detach if USIM detachment is performed, switch off is performed, or the power is removed, depending on the UE (see ICS/IXIT).

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell B				
1			Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call..
2	→		PAGING RESPONSE	"Ciphering key sequence number" shall be the same as the value that was sent in the last AUTHENTICATION REQUEST message (= CKSN2).
3	←		AUTHENTICATION REQUEST	
4	→		AUTHENTICATION RESPONSE	
5	←		AUTHENTICATION REJECT	
6	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
7	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
8	←		PAGING TYPE 1	The UE is paged in cell B. "UE identity " IE contains TMSI. Paging Cause: Terminating Conversational Call.
9	UE			The UE shall ignore this message. This is verified during 3 s.
10	SS			The SS waits for at least for 15 s.
11	UE			A MO CM connection is attempted.
12	UE			The UE shall not initiate an RRC connection establishment on cell A or cell B. This is checked during 3 s.
13	UE			If the UE supports speech (see ICS), an emergency call is attempted.
14	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS checks that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to "Emergency call".
15	~~←~~		~~RRC CONNECTION SETUP~~Void	
16	~~→~~		~~RRC CONNECTION SETUP~~ Void~~COMPLETE~~	
17	→		CM SERVICE REQUEST	"CM service type": Emergency call establishment. "Mobile identity": type of identity is set to IMEI.
18	←		CM SERVICE ACCEPT	
19	→		EMERGENCY SETUP	
20	←		RELEASE COMPLETE	"Cause" = unassigned number.
21	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
22	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
The following messages are sent and shall be received on cell A.				
23	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)
24	UE			The UE performs cell reselection according to procedure as specified in (this however is not checked until step 29). The UE shall not initiate an RRC connection establishment on cell A or on cell B.
25	SS			The SS waits at least 7 minutes for a possible periodic updating.
26	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B.
27	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
28	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 3 s.
29	UE			Depending on what has been performed in step 27~~6~~ the UE is brought back to operation.
30	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS checks that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to "Registration".

Step	Direction UE | SS	Message	Comments
31	←	~~RRC CONNECTION SETUP~~Void	
32	→	~~RRC CONNECTION SETUP COMPLETE~~Void	
33	→	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "Mobile Identity" = IMSI, "LAI" = deleted LAI (the MCC and MNC hold the previous values, the LAC is coded FFFE).
34	←	AUTHENTICATION REQUEST	"CKSN" = CKSN1.
35	→	AUTHENTICATION RESPONSE	
36	←	LOCATION UPDATING ACCEPT	"Mobile Identity" = TMSI.
37	→	TMSI REALLOCATION COMPLETE	
38	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
39	→	~~RRC CONNECTION RELEASE COMPLETE~~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.

9.2.2.5 Test requirement

1)

1.1 At step 24 the UE shall not send any RRC CONNECTION REQUEST on cell A or on cell B.

1.2 At step 25 the UE shall not send any RRC CONNECTION REQUEST on cell A or on cell B.

1.3 At step 9 the UE shall not respond to paging.

1.4 At step 12 the UE shall not send any RRC CONNECTION REQUEST on cell A or on cell B.

1.5 At step 28 the UE shall not send any RRC CONNECTION REQUEST on cell A or on cell B.

2) At step 14 the UE shall send a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call"; and at step 17 the UE shall send a CM SERVICE REQUEST message with the "CM service type" set to "Emergency call establishment".

3) At step 33 the UE shall perform location updating using its IMSI as mobile identity and indicates deleted LAI and CKSN.

9.3.1 General Identification

9.3.1.1 Definition

9.3.1.2 Conformance requirement

1) When requested by the network the UE shall send its IMSI.
2) When requested by the network the UE shall send the TMSI which it was previously allocated.
3) When requested by the network the UE shall send its IMEI as stored in the UE.
4) When requested by the network the UE shall send its IMEISV as stored in the UE.

Reference(s)

TS 24.008 clause 4.3.3.

9.3.1.3 Test purpose

1) To verify that the UE sends identity information as requested by the system in the following cases: IMSI and TMSI are requested in non-security mode, IMEI is requested in security mode.
2) To verify that the UE sends its IMEI, when requested to do so, in non- security mode.
3) To verify that the UE sends its IMEISV, when requested to do so, in non- security mode.

9.3.1.4 Method of test

9.3.1.4.1 Identification / test 1

Initial conditions

- System Simulator:
  - 1 cell, default values.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated" on the cell.

Related ICS/IXIT statement(s)

IMEI of the UE.

Test Procedure

The SS requests identity information from the UE:

- IMSI in non security mode;
- allocated TMSI in non security mode;
- IMEI in security mode.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
2	→		PAGING RESPONSE	
3	←		IDENTITY REQUEST	"Identity type" IE is IMSI.
4	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the IMSI of the UE.
5	←		IDENTITY REQUEST	"Identity type" IE is TMSI.
6	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the allocated TMSI of the UE.
7	~~←~~SS		~~SECURITY MODE COMMAND~~	The SS starts ciphering and integrity protection.
8	~~→~~		~~SECURITY MODE COMPLETE~~Void	
9	←		IDENTITY REQUEST	"Identity type" IE is IMEI.
10	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the IMEI stored in the UE.
11	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
12	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	

Specific message contents

None.

9.3.1.4.2 Identification / test 2

Initial conditions

- System Simulator:
  - 1 cell, default values.
- User Equipment:
  - the UE has a valid TMSI. It is in "idle updated".

Related ICS/IXIT statement(s)

IMEI of the UE.

IMEISV of the UE.

Test Procedure

The SS requests identity information from the UE:

- IMEI in non security mode;
- IMEISV in non security mode.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
1	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 Establishment Cause: Terminating Conversational Call.
2	→		PAGING RESPONSE	
3	←		IDENTITY REQUEST	"Identity type" IE is IMEI.
4	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the IMEI of the UE.
5	←		IDENTITY REQUEST	"Identity type" IE is IMEISV.
6	→		IDENTITY RESPONSE	"Mobile identity" IE specifies the IMEISV of the UE.
7	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
8	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	

Specific message contents

None.

9.3.1.5 Test requirement

1) At step 4 in test 1 and test 2 the UE shall send its IMSI.

2) At step 6 in test 1 the UE shall send the TMSI which it was previously allocated.

3) At step 10 in test 1 the UE shall send its IMEI as stored in the UE.

4) At step 6 in test 2 the UE shall send its IMEISV as stored in the UE.

9.4.1 Location updating / accepted

9.4.1.1 Definition

9.4.1.2 Conformance requirement

1\.

   1.1 if the network accepts a location updating from the UE and reallocates a TMSI in the LOCATION UPDATING ACCEPT message the UE shall acknowledge the reception of the new TMSI;

   1.2 the UE shall answer to paging with this TMSI and include it in a PAGING RESPONSE message.

2 If the network accepts a location updating from the UE and the LOCATION UPDATING ACCEPT message contains neither TMSI nor IMSI, the UE shall answer to paging when addressed with the last allocated TMSI and include it in the PAGING RESPONSE message.

3\.

   3.1 if the network accepts a location updating from the UE by use of a LOCATION UPDATING ACCEPT message containing the IMSI of the UE, the UE shall not answer paging with the last allocated TMSI;

   3.2 the UE shall still answer paging with IMSI.

Reference(s)

TS 24.008 clause 4.4.4.6.

9.4.1.3 Test purpose

1) To test the behaviour of the UE if the network accepts the location updating of the UE.

For the network response three different cases are identified:

   1.1) TMSI is allocated;

   1.2) location updating accept contains neither TMSI nor IMSI;

   1.3) location updating accept contains IMSI.

9.4.1.4 Method of test

Initial conditions:

- System Simulator:
  - two cells, A and B, belonging to different location areas with location area identification a and b 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 a valid TMSI (=TMSI1) and CKSN (=CKSN1). It is "idle updated" on cell A.

Related ICS/IXIT statement(s)

None.

Test Procedure

The UE is made to select cell B. A normal location updating with TMSI reallocation is performed in cell B. The RRC CONNECTION is released. The SS checks, by paging, that the UE has stored the newly allocated TMSI. The RRC CONNECTION is released. The UE is made to select cell A. A normal location updating is performed in cell A. The LOCATION UPDATING ACCEPT message contains neither IMSI nor TMSI. The SS checks, by paging, that the UE has kept the old TMSI. The RRC CONNECTION is released. The UE is made to select cell B. A normal location updating is performed in cell B. The LOCATION UPDATING ACCEPT message contains an IMSI. The SS checks, by paging, that the UE has deleted its TMSI and responds to paging with IMSI.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
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		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to : Registration. ~~"Initial UE identity" IE contains the TMSI (=TMSI1) and LAI (=a)~~
3	~~←~~		~~RRC CONNECTION SETUP~~Void	
4	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~ Void	
5	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" as given by the ICS and "mobile identity" = TMSI1. The MM message is included in the RRC messagge INITIAL DIRECT TRANSFER with the CN domain identity set to CS domain.
5a	~~←~~SS		~~SECURITY MODE COMMAND~~	The SS starts integrity protection.
5b	~~→~~		~~SECURITY MODE COMPLETE~~Void	
6	←		LOCATION UPDATING ACCEPT	"Mobile identity" = new TMSI (=TMSI2), LAI = b.
7	→		TMSI REALLOCATION COMPLETE	
8	~~←~~SS		~~RRC CONNECTION RELEASE~~	
9	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
9a				SS waits 5 seconds to guarantee that the UE is in service.
10	←		Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" IE contains the new TMSI (= TMSI2) and the new LAI (=b). Establishment Cause: Terminating Conversational Call.
11	→		PAGING RESPONSE	"Mobile identity" IE contains the new TMSI (= TMSI2).
12	~~←~~SS		~~RRC CONNECTION RELEASE~~	The SS releases the RRC Connection.
13	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
14	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)
15	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC Connection REQUEST message is set to "Registration". ~~"Initial UE identity" IE contains the TMSI (=TMSI2) and LAI (=b)~~
16	~~←~~		~~RRC CONNECTION SETUP~~Void	
17	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~ Void	

Step	Direction	Message	Comments
	UE SS		
18a	→	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = b, "mobile station classmark 1" as given by the ICS and "mobile identity" = TMSI2.
18b	~~←~~SS	~~SECURITY MODE COMMAND~~Void	The SS starts integrity protection.
18c	~~→~~	~~SECURITY MODE COMPLETE~~Void	
19	←	LOCATION UPDATING ACCEPT	"Mobile identity" IE not included. LAI = a
20	~~←~~SS	~~RRC CONNECTION RELEASE~~	
21	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	The SS releases the RRC connection and waits ~~an amount of time which is enough~~ 5s to guarantee that the UE is in service.
22	←	Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.12.2 "Initial UE identity" IE contains the TMSI (= TMSI2) and LAI (=a). Establishment Cause: Terminating Conversational Call.
23	→	PAGING RESPONSE	"Mobile identity" IE contains the TMSI (=TMSI2).
24	~~←~~SS	~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection.
25	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
26	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)
27	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST is set to "Registration". ~~"Initial UE identity" IE contains the TMSI (=TMSI2) and LAI (=a)~~
28	~~←~~	~~RRC CONNECTION SETUP~~Void	
29	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
30a	→	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "location area identification" = a, "mobile station classmark 1" as given by the ICS and "mobile identity" = TMSI2.
30b	~~←~~SS	~~SECURITY MODE COMMAND~~	The SS starts integrity protection.
30c	~~→~~	~~SECURITY MODE COMPLETE~~Void	
31	←	LOCATION UPDATING ACCEPT	"Mobile identity" IE contains IMSI and LAI (=b).
32	~~←~~SS	~~RRC CONNECTION RELEASE~~	
33	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	The SS waits 5s ~~an amount of time which is enough~~ to guarantee that the UE is in service.
34	←	PAGING TYPE 1	"UE identity" IE contains the old TMSI (= TMSI2). Paging Cause: Terminating Conversational Call.
35	UE		The UE shall ignore this message. This is checked during 5 s.
36	←	Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Initial UE identity" IE contains the IMSI. Establishment Cause: Terminating Conversational Call.
37	→	PAGING RESPONSE	"Mobile identity" IE contains the IMSI.
38	~~←~~SS	~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection.
39	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~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.

9.4.1.5 Test requirement

~~At steps 2, 10, 15, 22, 27 and 36 the UE shall transmit an RRC CONNECTION REQUEST message with the IE "Establishment cause" and the IE "Initial UE identity" set as specified in the above Expected Sequence.~~

At step 7 the UE shall acknowledge the reception of the new TMSI (TMSI2).

At step 11 the UE shall answer to paging with this TMSI (TMSI2).

At step 23 the UE shall answer to paging with the last allocated TMSI (TMSI2).

At step 35 the UE shall not answer paging with the last allocated TMSI, but at step 37 the UE shall still answer paging with IMSI.

9.4.2 Location updating / rejected

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 speech, 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(= CKSN1) 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 speech 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 UE SS	Message	Comments
			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	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST is set to “Registration”.
3	~~←~~	~~RRC CONNECTION SETUP~~	
4	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~ Void	
5	→	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "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	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC Connection.
8	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~ 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 3 s.
19	UE		If the UE supports speech (see ICS), it is made to perform an emergency call.
20	~~→~~SS	~~RRC CONNECTION REQUEST~~	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	~~←~~	~~RRC CONNECTION SETUP~~Void	
22	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~ 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	
26	←	RELEASE COMPLETE	"Cause" = unassigned number.
27	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
28	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~ Void	

Step	Direction		Message	Comments
	UE	SS		
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.
32	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST is set to “Registration”.
33	~~←~~		~~RRC CONNECTION SETUP~~Void	
34	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~ 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	"CKSN" = CKSN2.
37	→		AUTHENTICATION RESPONSE	
37a	SS			The SS starts integrity protection.
38	←		LOCATION UPDATING ACCEPT	"Mobile Identity" = TMSI.
39	→		TMSI REALLOCATION COMPLETE	
40	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
41	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~ 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.

9.4.2.2 Location updating / rejected / PLMN not allowed

9.4.2.2.1 Definition

9.4.2.2.2 Conformance requirement

1) If the network reject a location updating from the UE with the cause "PLMN not allowed" the UE shall:

    1.1 not perform periodic updating;

    1.2 not perform IMSI detach when switched off;

    1.3 not perform IMSI attach when switched on in the same location area;

    1.4 not perform normal location updating when in the same PLMN and when that PLMN is not selected manually;

    1.5 reject any request from CM entity for MM connection other than for emergency call.

2) If the network rejects a location updating from the UE with the cause "PLMN not allowed" the UE shall:

    2.1 perform normal location updating when a new PLMN is entered;

    2.2 accept a request for an emergency call, if it supports speech, by sending a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call".

3) If the network rejects a location updating from the UE with the cause "PLMN not allowed" and if after that the PLMN from which this rejection was received, is manually selected, the UE shall perform a normal location updating procedure.

4) If the network rejects a location updating from the UE with the cause "PLMN not allowed" the UE shall delete the stored LAI, CKSN and TMSI.

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.2.3 Test purpose

To test the behaviour of the UE if the network rejects the location updating of the UE with the cause "PLMN not allowed".

9.4.2.2.4 Method of test

9.4.2.2.4.1 Location updating / rejected / PLMN not allowed / test 1

Initial conditions

- System Simulator:
    - one cell: C, belonging to PLMN1;
    - two cells: A and B, belonging to different location areas a and b and belonging to PLMN2. PLMN2 is different from HPLMN and from PLMN1;
    - IMSI attach/detach is allowed in cells A and B but not in cell C;
    - the T3212 time-out value is 1/10 hour in cells A and B.
- User Equipment:
    - the UE has a valid TMSI(= TMSI1) and CKSN(= CKSN1). It is "idle updated" on cell C;
    - the UE is in manual mode for PLMN selection.

Related ICS/IXIT statement(s)

USIM removal possible while the UE is powered Yes/No.

Switch off on button Yes/No.

The UE is automatically in automatic mode after switch on Yes/No.

Support for speech Yes/No.

Test Procedure

The SS rejects a normal location updating with the cause value "PLMN not allowed". The RRC CONNECTION is released. The SS checks that the UE does not perform periodic updating, does not perform IMSI detach, does not perform IMSI attach if activated in the same location area, rejects any request for CM connection establishment other than emergency call, accepts a request for an emergency call, performs normal location updating only when a new PLMN is entered and deletes the stored LAI, CKSN and TMSI.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
				The following messages are sent and shall be received on cell B.
1	UE			The UE is switched off (or power is removed).
2	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "non-suitable cell". (see note)
3	UE			The UE is switched on. (or power is reapplied) If necessary the UE is put in manual selection mode. The UE shall offer the new PLMN as available to the user. The PLMN is manually selected.
4	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
5	~~←~~		~~RRC CONNECTION SETUP~~Void	
6	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~ Void	
7	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "LAI" = c, "Mobile Identity" = TMSI1
8	←		LOCATION UPDATING REJECT	"Reject cause" = PLMN not allowed.
9	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
10	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~ Void	
11	SS			The SS waits for a possible periodic updating for 7 minutes.
12	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B.
13	UE			If possible (see ICS) USIM detachment is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed.
14	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 3 s.
15	UE			Depending on what has been performed in step 13 the UE is brought back to operation. The UE is not made to select PLMN 2.
16	UE			The UE shall not initiate an RRC connection establishment. This is checked during 3 s.
				The following message are sent and shall be received on cell A.

Step	**Direction** **UE SS**	**Message**	**Comments**
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		No access to the network shall be registered by the SS within one minute.
19	UE		If the UE supports speech (see ICS) it is made to perform an emergency.
20	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Emergency Call”.
21	~~←~~	~~RRC CONNECTION SETUP~~Void	
22	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~ Void	
23	→	CM SERVICE REQUEST	"CM service type" = Emergency call establishment.
24	←	CM SERVICE ACCEPT	
25	→	EMERGENCY SETUP	
26	←	RELEASE COMPLETE	Cause IE: "unassigned number".
27	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
28	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~ Void	
29	UE		A MO CM connection is attempted.
30	UE		The UE shall not initiate an RRC connection establishment. This is checked during 3 s.
			The following messages are sent and shall be received on cell C.
31	UE		The UE is switched off.
32	SS		Set the cell type of cell C to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". Set the cell type of cell B to the "non-suitable cell". (see note)
33	UE		The UE is switched on. If necessary the UE is placed into the automatic mode.
34	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST is set to “Registration”.
35	~~←~~	~~RRC CONNECTION SETUP~~Void	
36	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~ Void	
37	→	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "LAI" = deleted LAI (the MCC and MNC hold the values of PLMN1, the LAC is coded FFFE) "mobile identity" = IMSI.
37a	SS		The SS starts integrity protection.
38	←	LOCATION UPDATING ACCEPT	"Mobile identity" = TMSI.
39	→	TMSI REALLOCATION COMPLETE	
40	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
41	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~ Void	
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.

9.4.2.2.4.2 Location updating / rejected / PLMN not allowed / test 2

Initial conditions

- System Simulator:
    - one cell C, belonging to PLMN1;
    - two cells A and B, belonging to different location areas a and b and belonging to PLMN2. PLMN2 is different from HPLMN;
    - IMSI attach/detach is allowed in cells A and B but not in cell C;
    - the T3212 time-out value is 1/10 hour in cells A and B.
- User Equipment:
    - the UE has a valid TMSI. It is "idle updated" on cell C.

Related ICS/IXIT statement(s)

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

The UE is automatically in automatic mode after switch on Yes/No.

Test Procedure

The SS rejects a normal location updating with the cause value "PLMN not allowed". The RRC CONNECTION is released. Then the PLMN from which this rejection was received is manually selected and the SS checks that a normal location updating is performed.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
				The following messages are sent and shall be received on cell B.
1	UE			The UE is switched off (or power is removed).
2	SS			Set the cell type of cell B to the "Serving cell". Set the cell type of cell A to the "Suitable neighbour cell". Set the cell type of cell C to the "non-suitable cell". (see note)
3	UE			The UE is switched on (or power is reapplied).
3a	UE			If the UE is in manual mode, it shall offer the new PLMN as available to the user. In this case the PLMN is manually selected.
4	→SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to "Registration".
5	←		~~RRC CONNECTION SETUP~~Void	
6	→		~~RRC CONNECTION SETUP COMPLETE~~ Void	
7	→		LOCATION UPDATING REQUEST	
8	←		LOCATION UPDATING REJECT	"Reject cause" = PLMN not allowed.
9	←SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
10	→		~~RRC CONNECTION RELEASE COMPLETE~~ Void	
11	UE			The UE is made to search for PLMNs and the PLMN indicated by the SS is manually selected.
12	→		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to "Registration".
13	←		~~RRC CONNECTION SETUP~~Void	
14	→		~~RRC CONNECTION SETUP COMPLETE~~ Void	
15	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "LAI" = deleted LAI (the MCC and MNC hold the values of PLMN1, the LAC is coded FFFE) "mobile identity" = IMSI.
15a	SS			The SS starts integrity protection.
15b	←		LOCATION UPDATING ACCEPT	
16	←SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
17	→		~~RRC CONNECTION RELEASE COMPLETE~~Void	
The following messages are sent and shall be received on cell C.				
18	UE			The UE is switched off.
19	SS			Set the cell type of cell C to the "Serving cell". Set the cell type of cell A to the "non-suitable cell". Set the cell type of cell B to the "non-suitable cell". (see note)
20	UE			The UE is switched on. If necessary, the UE is put into the automatic mode.
21	→SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to "Registration".
22	←		~~RRC CONNECTION SETUP~~Void	
23	→		~~RRC CONNECTION SETUP COMPLETE~~ Void	
24	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available, "LAI" = deleted LAI (the MCC and MNC hold the values of PLMN1, the LAC is coded FFFE) "mobile identity" = IMSI.
24a	SS			The SS starts integrity protection.
25	←		LOCATION UPDATING ACCEPT	"Mobile identity" = TMSI.

Step	Direction	Message	Comments
	UE SS		
26	→	TMSI REALLOCATION COMPLETE	
27	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
28	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~ Void	

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.

9.4.2.2.5 Test requirement

1) 1.1 At step 12 in test 1 the UE shall not perform periodic updating.

   1.2 At step 14 in test 1 the UE shall not initiate an RRC connection establishment (IMSI detach).

   1.3 At step 16 in test 1 the UE shall not initiate an RRC connection establishment (IMSI attach).

   1.4 At step 16 in test 1 the UE shall not perform normal location updating.

   1.5 At step 30 in test 1 the UE shall reject a MO CM connection.

2) 2.1 At step 37 in test 1 the UE shall perform normal location updating.

   2.2 At step 20 in test 1 the UE shall accept a request for an emergency call with the establishment cause set to "Emergency call".

3) At step 11 in test 2 the UE is made to search for PLMNs and the PLMN indicated by the SS is manually selected, and at step 15 the UE shall perform a normal location updating procedure.

4) At step 37 in test 1 the UE shall send a LOCATION UPDATING REQUEST message with Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and LAI IE set to "deleted LAI" on cell C.

9.4.2.3 Location updating / rejected / location area not allowed

9.4.2.3.1 Definition

9.4.2.3.2 Conformance requirement

1) If the network rejects a location updating from the UE with the cause "Location Area not allowed" the UE shall:

   1.1 not perform periodic updating;

   1.2 not respond to paging with TMSI;

   1.3 reject any request from CM entity for MM connection other than for emergency call;

   1.4 not perform IMSI detach.

   1.5 not delete the list of "equivalent PLMNs".

2) If the network rejects a location updating from the UE with the cause "Location Area not allowed" the UE shall:

   2.1 perform normal location updating when a new location area is entered;

2.2 accept a request for an emergency call, if it supports speech, by sending a RRC CONNECTION REQUEST message with the establishment cause set to "emergency call";

2.3 delete the list of forbidden LAs after switch off (power off).

3) If the network rejects a location updating from the UE with the cause "Location Area not allowed" the UE shall delete the stored LAI, CKSN and TMSI.

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.3.3 Test purpose

To test the behaviour of the UE if the network rejects the location updating of the UE with the cause "Location Area not allowed".

To test that the UE deletes the list of forbidden LAs after switch off (power off).

9.4.2.3.4 Method of test

Initial conditions

- System Simulator:
  - three~~two~~ cells: A, B and C~~B~~, belonging to different location areas a, b and c~~b~~. 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.
- 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.

Related ICS/IXIT statement(s)

Switch off on button Yes/No.

Support for speech Yes/No.

Method to clear the list of forbidden location areas periodically.

Test Procedure

The SS rejects a normal location updating with the cause value "Location Area not allowed". The RRC CONNECTION is released. The SS checks that the UE does not perform periodic updating, does not respond to paging with TMSI, rejects any requests from CM entities for MM-connections except emergency calls, does not perform IMSI detach, does not delete the list of "equivalent PLMNs", performs normal location updating when a new location area is entered, deletes the list of forbidden LAs when switched off and deletes the stored LAI, CKSN and TMSI.

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 UE SS	Message	Comments
			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”. Set the cell type of cell C to the “non-suitable cell”. (see note).
2	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
3	~~←~~	~~RRC CONNECTION SETUP~~Void	
4	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→	LOCATION UPDATING REQUEST	“location updating type” = normal, “CKSN” = CKSN1, “LAI” = a, “Mobile Identity” = TMSI1
6	←	LOCATION UPDATING REJECT	"Reject cause" = "Location Area not allowed".
7	~~←~~SS	~~RRC CONNECTION RELEASE~~	After the sending of this message, the SS waits for the disconnection of the mainsignalling link.The SS releases the RRC connection.
8	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~	
9	SS		SS waits for a possible location updating for 7 minutes.
10	UE		The UE shall not initiate an RRC-connection establishment either on cell A or cell B.
11	←	PAGING TYPE 1	The UE is paged in cell B. "UE identity" = TMSI. Paging Cause: Terminating Conversational Call.
12	UE		The UE shall ignore this message. This is checked during 3 s.
13	UE		A MO CM connection is attempted.
14	UE		The UE shall not initiate an RRC connection establishment on cell A or cell B. This is checked during 3 s.
15	UE		If the UE supports speech (see ICS), it is made to perform an emergency call.
16	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Emergency call”.
17	~~←~~	~~RRC CONNECTION SETUP~~Void	
18	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
19	→	CM SERVICE REQUEST	"CM service type": Emergency call establishment.
20	←	CM SERVICE ACCEPT	
21	→	EMERGENCY SETUP	
22	←	RELEASE COMPLETE	Cause: "unassigned number".
23	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
24	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
25	UE		If possible (see ICS) switch off is performed. Otherwise the power is removed.
26	UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B (check for IMSI detach) This is checked during 3 s.
27	UE		Depending on what has been performed in step 25 the UE is brought back to operation.
28	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
29	~~←~~	~~RRC CONNECTION SETUP~~Void	
30	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
31	→	LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = no key available,"LAI" = deleted LAI, "mobile identity" = IMSI (This checks the deletion of the forbidden lists)

Step	Direction	Message	Comments
	UE SS		
32	←	LOCATION UPDATING REJECT	"Reject cause" = "Location Area not allowed".
33	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
34	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
The following messages are sent and shall be received on cell C~~A~~.			
35	SS		Set the cell type of cell A to the "Suitable neighbour cell~~Serving 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).
36	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to "Registration".
37	~~←~~	~~RRC CONNECTION SETUP~~Void	
38	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~ Void	
39	→	LOCATION UPDATING REQUEST	
40	←	AUTHENTICATION REQUEST	
41	→	AUTHENTICATION RESPONSE	
41a	SS		The SS starts integrity protection.
42	←	LOCATION UPDATING ACCEPT	Mobile identity = TMSI.
43	→	TMSI REALLOCATION COMPLETE	
44	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
45	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
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.

9.4.2.3.5 Test requirement

1) 1.1 At step 10 the UE shall not perform periodic updating.

   1.2 At step 12 the UE shall not respond to paging with TMSI.

   1.3 At step 14 the UE shall not initiate an RRC connection establishment.

   1.4 At step 26 the UE shall not initiate an RRC connection establishment (IMSI detach).

   1.5 At step 39 the UE shall perform normal location updating on cell C.

2) 2.1 At step 39 the UE shall perform normal location updating.

   2.2 At step 16 the UE shall accept a request for an emergency call.

   2.3 At step 31 the UE shall send a LOCATION UPDATING REQUEST message on cell B.

3) At step 31 the UE shall send a LOCATION UPDATING REQUEST message with Mobile Identity IE set to its IMSI, CKSN IE set to "no key is available" and LAI IE set to "deleted LAI" on cell B.

9.4.2.4 Location updating / rejected / roaming not allowed in this location area

9.4.2.4.1 Definition

9.4.2.4.2 Conformance requirement

1) If the network rejects a location updating from the UE with the cause "Roaming not allowed in this location area" the UE shall:

    1.1 not perform periodic updating;

    1.2 not respond to paging with TMSI;

    1.3 reject any request from CM entity for MM connection other than for emergency call;

    1.4 not perform IMSI detach.

2) If the network rejects a location updating from the UE with the cause "Roaming not allowed in this location area" the UE shall:

    2.1 perform normal location updating when a new location area is entered;

    2.2 accept a request for an emergency call, if it supports speech, by sending a RRC CONNECTION Request message with the establishment cause set to "emergency call";

    2.3 periodically search for its HPLMN.

3) The UE shall reset the list of "Forbidden location areas for roaming" when it is switched off or has its power source removed or when the USIM is removed.

4) The UE shall contain a list of "forbidden location areas for roaming". 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". The lists shall accommodate each 10 or more location area identifications.

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.4.3 Test purposes

Test purpose 1

To test that on receipt of a rejection using the Roaming cause code, the UE ceases trying to update on that cell, that this situation continues for at least one periodic location interval period, and that the corresponding list is re-set by switching off the UE or removing its power source.

Test purpose 2

To test that if no cell is available, the UE does not answer to paging with TMSI, rejects a request from CM entity other than for emergency calls.

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 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.

Test purpose 5

To test that if the USIM is removed the list of "forbidden location areas for roaming" is cleared.

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.
- 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).

Related ICS/IXIT statement(s)

USIM removal possible while UE is powered Yes/No.

Switch off on button Yes/No.

Support of speech Yes/No.

Method to clear the list of location areas for roaming periodically.

The UE is automatically in automatic mode after switch on Yes/No.

Test Procedures

Procedure 1:

- The SS rejects a normal location updating with the cause value "Roaming not allowed in this location area". The RRC CONNECTION is released. The SS checks that the UE does not perform periodic location updating procedure. The UE is turned off and then on. The SS checks that the UE performs location updating on the cell on which its location update request had been rejected (this checks that the LA is not the forbidden list after switch on). This procedure is performed another time but the deletion of the list is checked while removing the USIM (instead of turning off the UE).

Procedure 2:

- The SS rejects a normal location updating with the cause value "Roaming not allowed in this location area". The RRC CONNECTION is released. The SS checks that the UE does not answer to a paging message with TMSI, rejects a request from CM entity but supports an emergency call.

Procedure 3:

- The SS rejects a normal location updating 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 begin a location updating procedure on the non-allowed location areas.

Procedure 4:

- The SS accepts a periodic location updating on a cell not belonging to the HPLMN. Then when the UE attempts to perform a periodic location updating to this cell, the SS rejects this location updating with the cause value "Roaming not allowed in this location area". Two cells are then available, one belonging to the HPLMN but with the weakest level. It is checked that the UE returns to its HPLMN.

Procedure 5: If USIM removal is possible while UE is powered:

- The SS rejects a normal location updating with the cause value "Roaming not allowed in this location area". The RRC CONNECTION is released. The SS checks that the UE does not perform periodic location updating procedure. The USIM is removed and inserted in the UE. The SS checks that the UE performs location updating on the cell on which its location update request had been rejected (this checks that the LA is not the forbidden list after switch on).

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

The following procedure is used during the test:

- change_LAI (x):
  - the purpose of this procedure is to change the value of Location Area Identifier of cell x;
  - the Location Area Identifier of cell x shall be changed. The code shall be chosen arbitrarily but shall be different from any previously used in this procedure. The code shall have the same MCC as the Home PLMN and shall not have the same MNC as the Home PLMN.

Procedure 1

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	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
3	~~←~~	~~RRC CONNECTION SETUP~~Void	
4	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→	LOCATION UPDATING REQUEST	Location Updating Type = normal.
6	←	LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
7	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection
8	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
9	SS		The SS waits at least 7 minutes for a possible location updating.
10	UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B.
11	UE		If possible (see ICS) the UE is switched off. Otherwise if possible the power is removed.
12	UE		Depending on what has been performed in step 11 the UE is brought back to operation and placed in an automatic mode.
13	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
14	~~←~~	~~RRC CONNECTION SETUP~~Void	
15	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
16	→	LOCATION UPDATING REQUEST	Location Updating Type = normal.
16a	SS		The SS starts integrity protection.
17	←	LOCATION UPDATING ACCEPT	"Mobile Identity" not IE included.
18	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
19	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~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”.		

Procedure 2

Step	Direction UE SS	Message	Comments
			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	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”. This message is sent on cell A.
3	~~←~~	~~RRC CONNECTION SETUP~~Void	
4	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→	LOCATION UPDATING REQUEST	
6	←	LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
7	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
8	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
			The following messages are sent and shall be received on cell B.
9	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
10	~~←~~	~~RRC CONNECTION SETUP~~Void	
11	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
12	→	LOCATION UPDATING REQUEST	
13	←	LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
14	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
15	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
16	SS		The SS waits for a possible location updating procedure on both cells A and B for 2 minutes.
17	UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B within 2 minutes after the end of step 15.
18	←	PAGING TYPE 1	"UE identity" = TMSI. This message is sent on cell A and on cell B. Paging Cause: Terminating Conversational Call.
19	UE		The UE shall not initiate an RRC connection on cell A or on cell B. This is checked during 3 s.
20	UE		A MO CM connection is attempted.
21	UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B. This is checked during 3 s.
The following messages are sent and shall be received on cell A. Steps 22 to 31 are performed if the UE supports speech.			
22	UE		An emergency call is attempted.
23	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Emergency Call”.
24	~~←~~	~~RRC CONNECTION SETUP~~Void	
25	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
26	→	CM SERVICE REQUEST	"CM service type": Emergency call establishment.
27	←	CM SERVICE ACCEPT	
28	→	EMERGENCY SETUP	

29	←		RELEASE COMPLETE	"Cause" = unassigned number.
30	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
31	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
NOTE: The definitions for “Serving cell” and “Suitable neighbour cell” are specified in TS 34.108 clause 6.1 “Reference Radio Conditions for signalling test cases only”.				

Procedure 3

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”. (see note)
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	
6	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
7	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
8	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell B.				
9	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
10	←		RRC CONNECTION SETUP	
11	→		RRC CONNECTION SETUP COMPLETE	
12	→		LOCATION UPDATING REQUEST	
13	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
14	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
15	→		RRC CONNECTION RELEASE COMPLETE	
16	SS			Change_LAI (A) within 5 s after step 13.
The following messages are sent and shall be received on cell A.				
17	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
18	←		RRC CONNECTION SETUP	
19	→		RRC CONNECTION SETUP COMPLETE	
20	→		LOCATION UPDATING REQUEST	
21	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
22	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
23	→		RRC CONNECTION RELEASE COMPLETE	
24	SS			Change_LAI (B) within 5 s after step 21.
The following messages are sent and shall be received on cell B.				
25	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
26	←		RRC CONNECTION SETUP	
27	→		RRC CONNECTION SETUP COMPLETE	
28	→		LOCATION UPDATING REQUEST	
29	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".

Step	Direction		Message	Comments
	UE	SS		
30	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
31	→		RRC CONNECTION RELEASE COMPLETE	
32	SS			Change_LAI (A) within 5 s after step 29.
The following messages are sent and shall be received on cell A.				
33	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
34	←		RRC CONNECTION SETUP	
35	→		RRC CONNECTION SETUP COMPLETE	
36	→		LOCATION UPDATING REQUEST	
37	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
38	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
39	→		RRC CONNECTION RELEASE COMPLETE	
40	SS			Change_LAI (B) within 5 s after step 37.
The following messages are sent and shall be received on cell B.				
41	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
42	←		RRC CONNECTION SETUP	
43	→		RRC CONNECTION SETUP COMPLETE	
44	→		LOCATION UPDATING REQUEST	
45	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
46	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
47	→		RRC CONNECTION RELEASE COMPLETE	
48	SS			The SS waits for a possible location updating procedure on both cells A and B for 7 minutes.
49	UE			The UE shall not initiate an RRC connection establishment on cell A or on cell B within 7 minutes after the end of step 47.
NOTE: The definitions for “Serving cell” and “Suitable neighbour cell” are specified in TS 34.108 clause 6.1 “Reference Radio Conditions for signalling test cases only”.				

Procedure 4

Step	Direction		Message	Comments
	UE	SS		
The following messages are sent and shall be received on cell A.				
1	SS			The SS waits for a periodic location updating procedure on cell A for 7 minutes after the initial conditions have been established.
2	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
3	←		RRC CONNECTION SETUP	
4	→		RRC CONNECTION SETUP COMPLETE	
5	→		LOCATION UPDATING REQUEST	Location Updating Type = periodic.
6	←		LOCATION UPDATING ACCEPT	"Mobile Identity" not IE included.
7	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
8	→		RRC CONNECTION RELEASE COMPLETE	
9	SS			The location area identity of cell C shall be changed to that of a location area in the Home PLMN.
10	SS			The SS waits for a periodic location updating procedure on cell A for 7 minutes.
11	→		RRC CONNECTION REQUEST	"Establishment cause": Registration. This message is sent on cell A within 7 minutes after the end of step 8.
12	←		RRC CONNECTION SETUP	
13	→		RRC CONNECTION SETUP COMPLETE	
14	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
15	←		LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
16	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
17	→		RRC CONNECTION RELEASE COMPLETE	
The following messages are sent and shall be received on cell C.				
18	→		RRC CONNECTION REQUEST	"Establishment cause": Registration.
19	←		RRC CONNECTION SETUP	
20	→		RRC CONNECTION SETUP COMPLETE	
21	→		LOCATION UPDATING REQUEST	"Location updating type" = periodic.
22	←		LOCATION UPDATING ACCEPT	"Mobile Identity" not IE included.
23	←		RRC CONNECTION RELEASE	After the sending of this message, the SS waits for the disconnection of the main signalling link.
24	→		RRC CONNECTION RELEASE COMPLETE	

Procedure 5

Step	**Direction** **UE SS**	**Message**	**Comments**
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	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
3	~~←~~	~~RRC CONNECTION SETUP~~Void	
4	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→	LOCATION UPDATING REQUEST	
6	←	LOCATION UPDATING REJECT	"Reject cause" IE is "Roaming not allowed in this location area".
7	~~←~~	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
8	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
9	SS		The SS waits at least 7 minutes for a possible location updating.
10	UE		The UE shall not initiate an RRC connection establishment on cell A or on cell B.
11	UE		The USIM is removed.
12	UE		The USIM is inserted into the ME.
13	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
14	~~←~~	~~RRC CONNECTION SETUP~~Void	
15	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
16	→	LOCATION UPDATING REQUEST	Location Updating Type = normal.
16a	SS		The SS starts integrity protection.
17	←	LOCATION UPDATING ACCEPT	"Mobile Identity" not IE included.
18	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
19	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~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.

9.4.2.4.5 Test requirement

1) 1.1 At step 10 in Procedure 1 the UE shall not perform periodic updating.

1.2 At step 19 in Procedure 2 the UE shall not respond to paging with TMSI.

1.3 At step 21 in procedure 2 the UE shall not initiate an RRC connection establishment.

1.4 After step 13 in Procedure 5 the UE shall perform location updating (at step 16; not perform IMSI detach).

2) 2.1 After step 9 in Procedure 2 the UE perform normal location updating (at step 12).

2.2 At step 23 in Procedure 2 the UE shall initiate a RRC CONNECTION REQUEST message with the establishment cause set to "Emergency call";

2.3 After step 14 in Procedure 4 the UE shall attempt to location updating with location updating type "periodic" (at step 21: periodically search for its HPLMN).

3) After step 12 in Procedure 5 the UE shall perform location updating (at step 16) when the USIM is removed.

4) At step 49 in Procedure 3 the UE shall not attempt to begin a location updating procedure.

9.4.2.5 Location updating / rejected / No Suitable Cells In Location Area

9.4.2.5.1 Definition

9.4.2.5.2 Conformance requirement

1) If the network rejects a location updating from the UE with the cause " No Suitable Cells In Location Area " the UE shall:

1.1 ~~-~~perform normal location updating at a suitable cell in another location area in the same PLMN.

1.2 not delete the list of "equivalent PLMNs".

Reference(s)

TS 24.008 clause 4.4.4.7.

9.4.2.5.3 Test purpose

To test the behaviour of the UE if the network rejects the location updating of the UE with the cause "No Suitable Cells In Location Area".

9.4.2.5.4 Method of test

Initial conditions

- System Simulator:
  - two cells: A and B, belonging to different location areas a and b and belonging to PLMN1;
  - one cell: C, belonging to PLMN2;
  - one cell: D, belonging to PLMN3;
  - IMSI attach/detach is allowed in~~-~~ cells A, B C and D~~C~~;
- 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.

Related ICS/IXIT statement(s)

None.

Test Procedure

The SS rejects a normal location updating with the cause value "No Suitable Cells In Location Area". The RRC CONNECTION is released. The SS checks that the UE shall search for a suitable cell in a different location area on the same PLMN, and shall perform normal location updating procedure in that cell

Expected sequence

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-~~S~~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)
2	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
3	~~←~~		~~RRC CONNECTION SETUP~~Void	
4	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "LAI" = a, "mobile station classmark 1" as given by the ICS and "Mobile Identity" = TMSI1.
6	←		LOCATION UPDATING REJECT	"Reject cause" = "No Suitable Cells In Location Area".
7	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
8	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
The following messages are sent and shall be received on cell C~~A~~.				
9	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
10	~~←~~		~~RRC CONNECTION SETUP~~Void	
11	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
12	→		LOCATION UPDATING REQUEST	"location updating type" = normal, "CKSN" = CKSN1, "LAI" = a, "mobile station classmark 1" as given by the ICS, "Mobile Identity" = TMSI1.
13			(void)	
14			(void)	
15	~~←~~SS		~~SECURITY MODE COMMAND~~	The SS starts integrity protection.
16	~~→~~		~~SECURITY MODE COMPLETE~~Void	
17	←		LOCATION UPDATING ACCEPT	Mobile identity = TMSI, LAI = c~~a~~.
18	→		TMSI REALLOCATION COMPLETE	
19	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
20	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
NOTE: The definitions for “Serving cell”,~~ and~~ “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.

9.4.2.5.5 Test requirement

At step 12 the UE shall perform normal location updating on cell C.

9.4.4 Location updating / release / expiry of T3240

9.4.4.1 Definition

9.4.4.2 Conformance requirement

The UE receiving a LOCATION UPDATING ACCEPT message shall start T3240: it shall abort the ~~RRC~~RR connection at the expiry of timer T3240.

References

TS 24.008 clauses 4.4.4.8 and 11.2.

9.4.4.3 Test purpose

To verify that the UE aborts the ~~RRC~~RR-connection at the expiry of timer T3240.

9.4.4.4 Method of test

Initial conditions

- System Simulator:
    - two cells: A and B, belonging to different location areas a and b.
- User Equipment:
    - the UE has a valid TMSI. It is "idle updated" on cell A.

Related ICS/IXIT statements

None.

Test Procedure

A normal location updating procedure is performed. The ~~RRC~~RR-connection is not released by the SS within the timer T3240. It is checked that the UE aborts the ~~RRC~~RR-connection.

Expected sequence

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
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 1)
2	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
3	~~←~~		~~RRC CONNECTION SETUP~~Void	
4	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→		LOCATION UPDATING REQUEST	
6	←		LOCATION UPDATING ACCEPT	
7	SS			The SS waits T3240 expiry.
8	→		SIGNALLING CONNECTION RELEASE INDICATION~~REQUEST~~	The UE shall abort the ~~RRC~~RR connection. (see note 2) CN domain identity = CS domain
9	~~←~~SS		~~RRC CONNECTION RELEASE~~	The SS ~~disconnect~~ releases the RRC connection ~~established~~.
10	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	~~Send only if RRC Connection Release is send.~~

NOTE1: 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”.

NOTE2: At the expiration of T3240, as per TS 24.008, RR connection shall be aborted. In UMTS, UE cannot release RRC connection on its own. Instead, UE can abort the RR connection (“CS signalling connection”) and send a Signalling Connection Release Indication~~Request~~ to the UTRAN, in order to initiate the release of RRC connection.

Specific message contents

None.

9.4.4.5 Test requirement

At step 10 the UE shall abort the RRC connection.

9.4.5 Location updating / periodic

9.4.5.2 Location updating / periodic normal / test 1

9.4.5.2.1 Definition

9.4.5.2.2 Conformance requirement

1 The UE shall stop and reset the timer T3212 of the periodic location updating procedure when the first MM message is received or SECURITY mode setting is completed in the case of MM connection establishment.

2 The UE shall stop and reset the timer T3212 of the periodic location updating procedure when the UE has responded to paging and thereafter has received the first correct L3 message that is not an RRC message.

References

TS 24.008 clause 4.4.2.

9.4.5.2.3 Test purpose

To verify that the UE stops and resets the timer T3212 of the periodic location updating procedure when:

- the first MM-message is received in the case of MM-connection establishment, security mode being not set;
- the UE has responded to paging and the first correct L3 message that is not an RRC message is received.

NOTE: T3212 is stopped when the MM-idle state is left and restarted when the MM sublayer returns to that state, substate NORMAL SERVICE or ATTEMPTING TO UPDATE. As a consequence, the exact time when T3212 is reset between those two events cannot be tested.

9.4.5.2.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters;
  - IMSI attach/detach is not allowed;
  - the T3212 time-out value is 2/10 hour.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated".

Related ICS/IXIT statements

None.

Test procedure

An UE originated MM connection is established and cleared. The RRC CONNECTION is released. It is checked that the UE performs a periodic location updating 12 minutes after the release of the RRC CONNECTION.

One minute after the periodic location updating, the UE is paged, it sends a RRC CONNECTION REQUEST message and the SS responds with an RRC CONNECTION SETUP message, a call is established and then cleared. It is checked that the UE performs a periodic location updating 12 minutes after the release of the link.

Expected sequence

Step	Direction	Message	Comments
	UE SS		
1	UE		A MO CM connection is attempted.
2	~~→~~	~~RRC CONNECTION REQUEST~~	
3	~~←~~	~~RRC CONNECTION SETUP~~	
4	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~	
5	→	CM SERVICE REQUEST	
6	←	CM SERVICE REJECT	cause #17 (network failure).
7	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
8	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
9	SS		The SS waits until the periodic location updating.
10	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”. This message shall arrive between 11 minutes 45 s and 12 minutes 15 s after the last release of the RRC connection by the SS.
11	~~←~~	~~RRC CONNECTION SETUP~~Void	
12	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
13	→	LOCATION UPDATING REQUEST	"Location updating type" = periodic.
14	←	LOCATION UPDATING ACCEPT	
15	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
16	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
17	SS		The SS waits 1 minute.
18	←	Mobile terminated establishment of Radio Resource Connection	See TS 34.108 clause 7.1.2 "Mobile identity" = IMSI. "Establishment cause": Terminating Conversational Call.
19	→	PAGING RESPONSE	
20	←	AUTHENTICATION REQUEST	
21	→	AUTHENTICATION RESPONSE	
22	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
23	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
24	SS		The SS waits until the periodic location updating.
25	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”. This message shall arrive between 11 minutes 45 s and 12 minutes 15 s after the last release of the RRC connection by the SS.
26	~~←~~	~~RRC CONNECTION SETUP~~Void	
27	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
28	→	LOCATION UPDATING REQUEST	"Location updating type" = periodic.
29	←	LOCATION UPDATING ACCEPT	
30	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
31	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	

Specific message contents

None.

9.4.5.2.5 Test requirement

At step 10 the UE shall initiate an RRC CONNECTION REQUEST 12 minutes after the release of the RRC CONNECTION (at step 7).

At step 25 the UE shall initiate an RRC CONNECTION REQUEST 12 minutes after the release of the RRC CONNECTION (at step 22).

9.4.5.3 Location updating / periodic normal / test 2

9.4.5.3.1 Definition

9.4.5.3.2 Conformance requirement

When a LOCATION UPDATING ACCEPT or a LOCATION UPDATING REJECT message is received, the timer T3212 is stopped and reset and the UE shall perform a periodic location updating after T3212 expiry.

References

TS 24.008 clause 4.4.2.

9.4.5.3.3 Test purpose

To verify that the UE stops and resets the timer T3212 of the periodic location updating procedure when a LOCATION UPDATING ACCEPT message is received.

NOTE: T3212 is stopped when the MM-idle state is left and restarted when the MM sublayer returns to that state, substate NORMAL SERVICE or ATTEMPTING TO UPDATE. As a consequence, the exact time when T3212 is reset between those two events cannot be tested.

9.4.5.3.4 Method of test

Initial conditions

- System Simulator:
  - 2 cells, IMSI attach/detach is allowed in both cells;
  - T3212 is set to 6 minutes.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated" on cell A.

Related ICS/IXIT statements

USIM removal possible while UE is powered Yes/No.

Switch off on button yes/No.

Test procedure

A normal location updating is performed. The RRC CONNECTION is released. One minute later, the UE is deactivated, then reactivated in the same cell. It is checked that the UE performs an IMSI attach and a periodic location updating 6 minutes after the IMSI attach.

Expected sequence

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	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
3	~~←~~	~~RRC CONNECTION SETUP~~Void	
4	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→	LOCATION UPDATING REQUEST	"location updating type" = normal.
5a	SS		The SS starts integrity protection.
6	←	LOCATION UPDATING ACCEPT	
7	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
8	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
9	SS		The SS waits until the periodic location updating.
10	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”. This message shall arrive between 5 minutes 45s and 6 minutes 15 s after the last release of the RRC connection by the SS.
11	~~←~~	~~RRC CONNECTION SETUP~~Void	
12	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
13	→	LOCATION UPDATING REQUEST	"Location updating type" = periodic.
14	←	LOCATION UPDATING ACCEPT	
15	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
16	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
17	UE		If possible (see ICS) USIM removal is performed. Otherwise if possible (see ICS) switch off is performed. Otherwise the power is removed. steps 18 to 23 may be performed or not depending on the action made in step 17.
18	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Detach”.
19	~~←~~	~~RRC CONNECTION SETUP~~Void	
20	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
21	→	IMSI DETACH INDICATION	
22	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
23	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
24	UE		Depending on what has been performed in step 17 the UE is brought back to operation.
25	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
26	~~←~~	~~RRC CONNECTION SETUP~~Void	
27	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	

Step	Direction	Message	Comments
	UE SS		
28	→	LOCATION UPDATING REQUEST	"Location updating type" = IMSI attach.
28a	SS		The SS starts integrity protection.
29	←	LOCATION UPDATING ACCEPT	
30	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
31	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
32	SS		The SS waits until the periodic location updating.
33	~~→~~SS	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to "Registration". This message shall arrive between 5 minutes 45 s and 6 minutes 15s after the last release of the RRC connection by the SS.
34	~~←~~	~~RRC CONNECTION SETUP~~Void	
35	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
36	→	LOCATION UPDATING REQUEST	"Location updating type" = periodic.
37	←	LOCATION UPDATING ACCEPT	
38	~~←~~SS	~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
39	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~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.

9.4.5.3.5 Test requirement

After step 28 the UE shall performs an IMSI attach.

After step 33 the UE shall performs periodic location updating 6 minutes after step 28.

9.4.5.4 Location updating / periodic search for HPLMN or higher priority PLMN when in VPLMN

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	MCC	MNC
A	001	001
B	022	002
C	001	010
D	001	100

Initially Cells A, B and C shall not be broadcasting. IMSI attach/detach is not allowed on any of other cells.

- 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
$EF_{HPLMNwAcT}$	1st	A
$EF_{PLMNwAcT}$	1st	B
	2nd	E
$EF_{OPLMNwAcT}$	1st	C
	2nd	D

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 7minutes 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.

Expected sequence

Step	Direction		Message	Contents
	UE	SS		
1	SS			The following messages shall be sent and received on Cell D. 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 “non-suitable cell”. Set the cell type of Cell D to the “Suitable neighbour cell”. (see note)
1a	UE			The UE is switched on by either using the Power Switch or by applying power.
2	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
3	~~←~~		~~RRC CONNECTION SETUP~~Void	
4	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→		LOCATION UPDATING REQUEST	"Location Update Type": Normal.
5a	SS			The SS starts integrity protection.
6	←		LOCATION UPDATING ACCEPT	“Equivalent PLMNs”: PLMN E
7	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After sending this message the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
8	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
8a	SS			The SS waits a period of 7 minutes after the UE is switched on, this allowing the UE to make its first periodic search.
8b	SS			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)
8c	SS			The SS shall wait for 7 minutes during which no messages should be received.
9	SS			Set the cell type of cell A to the “Suitable neighbour cell”. (see note) Within 6 minutes after step 9, the following messages shall be sent and received on Cell A.
10	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
11	~~←~~		~~RRC CONNECTION SETUP~~Void	
12	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
13	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
13a	SS			The SS starts integrity protection.
14	←		LOCATION UPDATING ACCEPT	
15	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After sending this message the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
16	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
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.

9.4.5.4.1.5 Test requirement

1. At step 8c, the UE shall not send any LOCATION UPDATING REQUEST on cell C.
2. At step 8c, the UE shall not send any LOCATION UPDATING REQUEST on cell B.
3. At step 13 the UE shall send a LOCATION UPDATING REQUEST message on Cell A.

9.4.8 Location Updating after UE power off

9.4.8.1 Definition

Test to verify that the UE stores the equivalent PLMN list at UE power off and uses the stored equivalent PLMN list after UE switch on.

9.4.8.2 Conformance requirement

The equivalent PLMN list shall be stored in the mobile station while switched off so that it can be used for PLMN selection after switch on.

References

TS 24.008 4.4.4.6

9.4.8.3 Test purpose

To verify that the UE stores the equivalent PLMN list at UE switch off and uses the stored equivalent PLMN list after UE switch on.

9.4.8.4 Method of test

Initial conditions

- System Simulator:
    - three cells: A, B and C. Cell A belongs to PLMN1 which is HPLMN. Cell B belongs to PLMN2. Cell C belongs to PLMN3.
- User Equipment:
    - the UE is switched off;
    - the UE is in automatic mode for PLMN selection;
    - the UE is equipped with a USIM containing default values except for those listed below.

USIM field	Priority	PLMN
EF_{LOCI}		PLMN 1
$EF_{HPLMNwAcT}$	1st	PLMN 1
$EF_{PLMNwAcT}$	Empty	
$EF_{OPLMNwAcT}$	1st	PLMN 3
	2nd	PLMN 2

Related ICS/IXIT statement(s)

Switch off on button Yes/No.

Test procedure

When the UE is initially swiched on it will perform a normal location updating in Cell A, which is the only suitable cell available and belongs to the HPLMN. The LOCATION UPDATING ACCEPT message sent by the SS shall include PLMN2 in the equivalent PLMN list. The UE shall be swiched-off. Cell A shall be made unavailable and Cells B and C shall be made available. When the UE is switched-on again, the UE shall perform a normal location updating in Cell B and not in Cell C because PLMN2 is stored in the UE equivalent PLMN 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 “Serving cell”. Set the cell type of Cell B and Cell C to the “non-suitable cell”. (see note)
2	UE			The UE is switched on by either using the Power Switch or by applying power.
3	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
4	~~←~~		~~RRC CONNECTION SETUP~~Void	
5	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~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		~~RRC CONNECTION RELEASE~~	~~After sending this message the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
9	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
				The following messages shall be sent and received on Cell B.
10	UE			The UE is switched-off
11	SS			Set the cell type of Cell A to the “non-suitable 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)
12	UE			The UE is switched-on, either by using the Power Switch or by applying power.
13	~~→~~SS		~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
14	~~←~~		~~RRC CONNECTION SETUP~~Void	
15	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
16	→		LOCATION UPDATING REQUEST	"Location Update Type": normal.
16a				The SS starts integrity protection.
17	←		LOCATION UPDATING ACCEPT	
18	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After sending this message the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
19	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
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.

9.4.8.5 Test requirements

At step 16 the UE shall perform a normal location updating in Cell B.

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 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.
- 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.

USIM field	Priority	PLMN
EF_{LOCI}		PLMN 1
$EF_{HPLMNwAcT}$	1st	PLMN 3
$EF_{PLMNwAcT}$	1st	PLMN 2
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 swiched-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 UE SS	Message	Contents
			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	~~RRC CONNECTION REQUEST~~	The SS verifies that the IE "Establishment cause"~~:~~ in the received RRC CONNECTION REQUEST message is set to “Registration”.
4	~~←~~	~~RRC CONNECTION SETUP~~Void	
5	~~→~~	~~RRC CONNECTION SETUP COMPLETE~~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	~~RRC CONNECTION RELEASE~~	~~After sending this message the SS waits for the disconnection of the main signalling link.~~ The SS releases the RRC connection.
9	~~→~~	~~RRC CONNECTION RELEASE COMPLETE~~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.

9.5 MM connection

9.5.1 Introduction

[tbd]

9.5.2 MM connection / establishment in security mode

9.5.2.1 Definition

9.5.2.2 Conformance requirement

1) The UE shall be able to correctly set up an MM connection in a Mobile Originating CM connection attempt and send a CM SERVICE REQUEST message with CKSN information element as stored in the USIM and Mobile Identity information element set to the TMSI.

2) The UE shall be able to interpret security mode setting as acceptance of its CM service request i.e. send a CM message.

References

TS 24.008 clause 4.5.1.1.

9.5.2.3 Test purpose

To verify that the UE can correctly set up an MM connection in an origination and interpret security mode setting as acceptance of its CM service request.

9.5.2.4 Method of test

Initial conditions

- System Simulator:
  - 1 cell, default parameters.
- User Equipment:
  - the UE has a valid TMSI. It is "idle updated".

Related ICS/IXIT statements

None.

Test Procedure

A mobile originating CM connection is initiated. After the UE has sent the CM SERVICE REQUEST message to the SS, an authentication procedure and a security mode setting procedure are performed. Then, the UE sends a CM message and the SS clears the call and releases the RRC CONNECTION.

Expected sequence

Step	Direction		Message	Comments
	UE	SS		
1	UE			A MO CM connection is attempted.
2	~~→~~		~~RRC CONNECTION REQUEST~~Void	
3	~~←~~		~~RRC CONNECTION SETUP~~Void	
4	~~→~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
5	→		CM SERVICE REQUEST	
6	←		AUTHENTICATION REQUEST	
7	→		AUTHENTICATION RESPONSE	
8	~~←~~SS		~~SECURITY MODE COMMAND~~	The SS starts ciphering and integrity protection.
9	~~→~~		~~SECURITY MODE COMPLETE~~Void	
A10	→		SETUP	
A11	←		RELEASE COMPLETE	"Cause" IE: "unassigned number".
B10	→		REGISTER	
B11	←		RELEASE COMPLETE	
C10	→		CP-DATA	
C11	←		CP-ACK	
C12	←		CP-DATA	
C13	→		CP-ACK	
14	~~←~~SS		~~RRC CONNECTION RELEASE~~	~~After the sending of this message, the SS waits for the disconnection of the main signalling link.~~The SS releases the RRC connection.
15	~~→~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	

Specific message contents

None.

9.5.2.5 Test requirement

At step 5 the UE shall send the CM SERVICE REQUEST message to the SS.

At step A10 or B10 or C10 the UE shall send a CM message and the SS shall release the RRC connection (step 14).

3GPP TSG- T1 Meeting #16 **T1-020557**
Yokohama, Japan, 2nd Aug 2002

3GPP TSG- T1 SIG Meeting #24 **T1S-020538**
Yokohama, Japan, 29th – 31st August 2002

CR-Form-v6.1

CHANGE REQUEST

⌘ **TS 34.123-1 CR 296** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

Spec Title: User Equipment (UE) conformance specification; Part 1: Protocol conformance specification ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘ Corrections to package 2 test cases in clause 8.3 (T1S-020494rev1)
Source:	⌘ Ericsson, Panasonic
Work item code:	⌘ TEI
Date:	⌘ 1/8/2002
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)*

Reason for change: ⌘

1. Update Conformance Requirement according to core specification 25.331.
2. Editorial changes.
3. Add generic procedure at the end of some test cases to verify the final state of the UE.
4. In clause 8.3.2.7, the test should be repeated until the counter V302 reaches its limit.
5. In some TCs, PHYSICAL CHANNEL RECONFIGURATION should be used instead of RADIO BEARER RELEASE because these TCs are only related to channel type switching. Thus there is no need to release the Radio Bearer(s).
6. ~~TC 8.3.1.9 is removed since it will not be possible to verify due to tolerances of timer values.~~
7. In TC 8.3.2.1, additional cell and URA-Ids are included to test more functionalities of UE.

Modifications from **T1S-020411** and **T1S-020404** (Ericsson) are highlighted in yellow below:

1. Usage of PHYSICAL CHANNEL CONFIGURATION instead of RADIO BEARER RELEASE.
2. The issue of timer inaccuracy is considered in test cases.

Summary of change: ⌘ In clause 8.3.1.2

- Conformance Requirement and Test Purpose are updated.
- SS called generic procedure C.4 to check that UE is in CELL_PCH at the end of test.

- In CELL UPDATE (step 3), the IE “Cell update cause” is adjusted to be aligned with its value.

In clause 8.3.1.4

- Conformance Requirement and Test Purpose are updated.
- References are added.
- Editorial changes.
- Step 20 will be the same as 8 and 17 since C-RNTI is not needed when the UE is moving to CELL_PCH.

In clause 8.3.1.5

- Conformance Requirement and Test Purpose are updated.
- PHYSICAL CHANNEL RECONFIGURATION should be used instead of RADIO BEARER RELEASE. This test case is only related to channel type switching, then there is no need to release the Radio Bearer(s).

In clause 8.3.1.6

- Conformance Requirement and Test Purpose are updated.
- PHYSICAL CHANNEL RECONFIGURATION should be used instead of RADIO BEARER RELEASE. This test case is only related to channel type switching, then there is no need to release the Radio Bearer(s).

In clause 8.3.1.9

- Conformance Requirement and Test Purpose are updated.

In clause 8.3.1.10

- Conformance Requirement and Test Purpose are updated.
- SS called generic procedure C.1 to check that UE is in idle mode at the end of test.
- The start of the timer T305 should be synchronised between the UE and SS, so the SS then can wait (T305+T307) +10% for UE to enter idle mode. Before step 2, the UE should do a periodical cell update.

In clause 8.3.1.11

- Conformance Requirement and Test Purpose are updated.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.3.1.21

- Test Purpose are updated.
- In Table 8.3.1.21, CPICH RSCP” should be changed to “CPICH Ec”.

In clause 8.3.1.22

- Test Purpose are updated.
- “CPICH RSCP” should be changed to “CPICH Ec”
- Specific message content added.
- Reference to “T2” under the table is removed, since there is no column “T2” in the table.

In clause 8.3.2.1

- Conformance Requirement and Test Purpose are updated.
- A list of 3 URA-IDs is broadcasted in cell 2 to verify that the UE reads all broadcasted URA-IDs and detects that its current URA id is part of the list.
- A fourth cell is added with no SIB2 broadcsted to verify that the UE transmits URA update when in URA-PCH state and no URA-ID is broadcasted.
- In Test Requirement, it is clarified that the statement "no URA update message shall be transmitted" is only valid for URA update messages

with cause "change of URA". Periodical URA updates may still occur.

In clause 8.3.2.3

- Assuming a timer inaccuracy of 10%, the current test case does not seem feasible:
  - In this test case, the SS shall lower the cell power to create an OOS detection temporarily. The lower power shall be set before T305 expiry, but the power shall be increased again before T307 expiry.
  - If we assume that we know Ts when the UE starts T305 (based on the last periodic cell update, T305 might expire between Ts + T305 +/- 10%. When using the lowest T305 value (5 minutes), this leads to the lowest absolute inaccuracy of 30 seconds: T305 might expire somewhere between Ts-30s and Ts+30s.
  - If we use the largest T307 (50seconds), T305+T307 might expire somewhere between Ts+15s and Ts+85s (again assuming 10% inaccuracy in T307).
  - As a result, there is no time-instance left at which we can be sure that T305 is expired but T305+T307 is not expired.

- In general, the likelyhood of the UE only detecting the OOS at T305 expiry is very small. R99 CR R4-021045 on 25.133 accepted in the RAN4 May 2002 meeting, specifies explicitely that "The UE is "out of service area" if the UE has evaluated for 4 s that that the serving cell does not fulfil the cell selection criterion S and if the UE has not found any new suitable cell based on searches and measurements of the neighbour cells indicated in the measurement control system information during these 4 s". Thus it is much more likely that T317 will be started by a UE than T307. Therefore it is proposed to update the test case to a general test case concerning re-entering of service area after being out of service area in stead of linking this to T305 expiry.

- The MIB is updated to reflect that SIBs 3 and 4 have changed.

In clause 8.3.2.4

- Conformance Requirement and Test Purpose are updated.
- References are added.
- SS called generic procedure C.1 to check that UE is in idle mode at the end of test.
- SIB1 is updated to ensure that T317 will not expire before T305+T307.
- The MIB is updated to reflect that SIBs 1,3 and 4 have changed.
- The SS waits for a periodical URA update in the beginning of the text to know the timing of the T305 in the UE.
- It is clarified that the SS must wait (T305+T307) +10% for the UE to enter idle mode (this includes the UE timer tolerance but not the SS tolerance).

In clause 8.3.2.7

- Conformance Requirement and Test Purpose are updated.
- References are added.
- The test should be repeated until SS receives N302 +1 URA Update messages.
- In order to test an SRNS relocation in combination with the URA update, integrity protection mode information is added to the URA UPDATE CONFIRM.

In clause 8.3.1.2

- As step 7 was removed, the specific message content of step 7 is removed.

		Corrections to **T1S-020494** are highlighted in red: 1. Editorial: TC 8.3.1.9 is not removed. TC 8.3.2.1: The row for P-CCPCH RSCP (TDD) is added.
Consequences if not approved:	⌘	The test prose cannot test UE correctly.

Clauses affected:	⌘	8.3.1.2, 8.3.1.4, 8.3.1.5, 8.3.1.6, 8.3.1.9, 8.3.1.10, 8.3.1.11, 8.3.1.21, 8.3.1.22, 8.3.2.1, 8.3.2.3, 8.3.2.4, 8.3.2.7		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ 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/3G_Specs/CRs.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.

8.3.1.2 Cell Update: cell reselection in CELL_PCH

8.3.1.2.1 Definition

8.3.1.2.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

- 1> Uplink data transmission:
  - …
- 1> Paging response:
  - …
- 1> Radio link failure:
  - …
- 1> Re-entering service area:
  - …
- 1> RLC unrecoverable error:
  - …
- 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".

When initiating cell update procedure, the UE shall:

- 1> stop timer T305;
- 1> if the UE is in CELL_DCH state:
  - …
- …
- 1> move to CELL_FACH state, if not already in that state;
- 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.

…

In case of cell update procedure the UE shall transmit a CELL UPDATE message.

The UE shall set the IEs in the CELL UPDATE message as follows:

1> set the IE "Cell update cause" corresponding to the cause specified in TS 25.331 subclause 8.3.1.2 that is valid when the CELL UPDATE message is submitted to lower layers for transmission;

NOTE: During the time period starting from when a cell update procedure is initiated by the UE until when the procedure ends, additional CELL UPDATE messages may be transmitted by the UE with different causes.

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

1> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:

…

1> if the value of the variable FAILURE_INDICATOR is TRUE:

…

…

When the UE receives a CELL UPDATE CONFIRM message; and

- if the message is received on the CCCH, and IE "U-RNTI" is present and has the same value as the variable U_RNTI; or

- if the message is received on DCCH:

the UE shall:

1> stop timer T302;

1> in case of a cell update procedure and the CELL UPDATE CONFIRM message:

…

1> act upon all received information elements as specified in TS 25.331 subclause 8.6, unless specified otherwise in the following:

…

2> perform the physical layer synchronisation procedure as specified in TS 25.214;

…

…

1> enter a state according to subclause 8.6.3.3 applied on the CELL UPDATE CONFIRM / URA UPDATE CONFIRM message.

…

If the UE after state transition enters CELL_PCH state, it shall:

…

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

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 TS 25.331 subclause 8.6.3.2 in CELL_PCH state.

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

  2> set the variable INVALID_CONFIGURATION to TRUE.

If the CELL UPDATE CONFIRM message:

- does not include "RB information elements"; and
- does not include "Transport channel information elements"; and
- does not include "Physical channel information elements"; and
- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New C-RNTI"; and
- does not include the IE "New U-RNTI":

the UE shall:

1> transmit no response message.

~~This procedure is to update UTRAN with information of the current cell, after a cell reselection has occurred in CELL_PCH state.~~

Reference

3GPP TS 25.331 clause 8.3.1.

8.3.1.2.3 Test purpose

1. To confirm that the UE, in CELL_PCH state, executes a cell update procedure after the successful reselection of another UTRA cell.

8.3.1.2.4 Method of test

Initial Condition

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

UE: CELL_PCH (state 6-12) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is brought to CELL_PCH state and is camped onto cell 1. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.1. When the UE detects the presence of cell 2, it moves to CELL_FACH state and transmits a CELL UPDATE message on the uplink CCCH. The value "cell reselection" shall be set in IE "Cell update cause" in CELL UPDATE message. Upon reception of CELL_UPDATE message, SS replies with a CELL UPDATE CONFIRM message with the IE "RRC State Indicator" set to "CELL_PCH". After receiving this message, the UE returns to CELL_PCH state without transmitting any uplink message. SS calls for generic procedure C.4 to check that UE is in CELL_PCH state. ~~The SS transmits a PAGING TYPE 1 message, causing the UE to enter CELL_FACH state and the UE shall transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "paging response". SS shall respond with a CELL UPDATE CONFIRM message.~~

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_PCH state in cell 1
2				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.1. The UE shall find that the cell 2 is better and attempt to perform a cell reselection.
3	→		CELL UPDATE	The UE moves to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection"
4	←		CELL UPDATE CONFIRM	IE "RRC State Indicator" is set to "CELL_PCH".
5				The UE is in CELL_PCH state.
~~6~~	~~←~~		~~PAGING TYPE 1~~	~~The SS transmits this message with a matched identity.~~
~~7~~	~~→~~		~~CELL UPDATE~~	~~The UE is in CELL_FACH state~~
~~8~~	~~←~~		~~CELL UPDATE CONFIRM~~	
~~9~~	~~→~~		~~UTRAN MOBILITY INFORMATION CONFIRM~~	
6	←→		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

CELL UPDATE (Steps 3~~ and 7~~)

The same message found in ~~Annex A~~ 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 - S-RNTI	 Check to see if set to '0000 0000 0001' Check to see if set to '0000 0000 0000 0000 0001'
Cell Update Cause	Check to see if set to 'Cell Re-selection' ~~when in step 3.~~ ~~Check to see if set to "paging response" when in step 7.~~

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9, with the following exceptions:

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

~~CELL UPDATE CONFIRM (Step 8)~~

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

~~Information Element~~	~~Value/remark~~
~~RRC State Indicator~~	~~CELL_FACH~~
~~New C-RNTI~~	~~'1010 1010 1010 1010'~~

8.3.1.2.5 Test requirement

After step 2 the UE shall reselect to cell 2 and transmit a CELL UPDATE message, containing the IE "Cell update cause" set to "cell reselection".

After step 4, the UE shall enter CELL_PCH state.

~~After step 6 the UE shall transmit a CELL UPDATE message on the CCCH with IE "Cell update cause" set to "paging response".~~

~~After step 8, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the DCCH using AM RLC.~~

8.3.1.4 Cell Update: periodical cell update in CELL_PCH

8.3.1.4.1 Definition

8.3.1.4.2 Conformance requirement

UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

…

1> RLC unrecoverable error:

…

1> Cell reselection:

…

1> Periodical cell update:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the timer T305 expires; and

2> if the criteria for "in service area" as specified in TS 25.331 subclause 8.5.5.2 is fulfilled; and

2> if periodic updating has been configured by T305 in the IE "UE Timers and constants in connected mode" set to any other value than "infinity":

3> perform cell update using the cause "periodical cell update".

When the UE receives a UTRAN MOBILITY INFORMATION message, it shall:

1> act on received information elements as specified in TS 25.331 subclause 8.6;

1> if the IE "UE Timers and constants in connected mode" is present:

2> store the values of the IE "UE Timers and constants in connected mode" in the variable TIMERS_AND_CONSTANTS, replacing any previously stored value for each timer and constant; and

2> for each updated timer value:

3> start using the new value next time the timer is started;

2> for each updated constant value:

3> start using the new value directly;

1> set the IE "RRC transaction identifier" in the UTRAN MOBILITY INFORMATION CONFIRM message to the value of "RRC transaction identifier" in the entry for the UTRAN MOBILITY INFORMATION message in the table "Accepted transactions" in the variable TRANSACTIONS; and

1> clear that entry;

1> transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC;

…

~~This procedure is to update UTRAN with the information of the current cell when the UE detects that it is still in the service area, while residing in the CELL_PCH state, after the expiry of timer T305.~~

Reference

3GPP TS 25.331 clause 8.3.1, 8.3.3.3

8.3.1.4.3 Test purpose

1. To confirm that the UE, in CELL_PCH state, executes a cell update procedure after the expiry of timer T305.

8.3.1.4.4 Method of test

Initial Condition

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

UE: CELL_PCH (state 6-12) in cell 1 as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.4

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	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-60

Table 8.3.1.4 illustrates the downlink power to be applied for the 2 cells at various time instants of the test execution.

The UE starts from CELL_PCH state. When the UE detects the expiry of periodic cell updating timer T305 according to the system information, the UE moves to CELL_FACH state. It shall transmit a CELL UPDATE message on the uplink CCCH and set the value "periodical cell update" into IE "Cell update cause". SS answers with a CELL UPDATE CONFIRM message. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "infinity", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM with IE "RRC state indicator" set to "CELL_PCH". Then UE shall enter CELL_PCH state. SS then monitors the uplink CCCH for a period up to the maximum possible value for timer T305 (720 minutes) and verifies that no CELL_UPDATE message is received. SS then configures its downlink transmission power settings according to columns "T0" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 1 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. Next, SS transmits UTRAN MOBILITY INFORMATION message, which includes IE "T305" set to "5", to UE. UE shall transmit UTRAN MOBILITY INFORMATION CONFIRM message. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.4, causing the UE to enter CELL_FACH state in cell 2 and transmit a CELL UPDATE message on uplink CCCH with IE "Cell update cause" set to "cell reselection". Then SS shall transmit CELL UPDATE CONFIRM with IE "RRC state indicator" set to "CELL_PCH". Then UE shall enter CELL_PCH state. After T305 expires, UE shall transmit CELL UPDATE message with IE "cell update cause" set to "periodical cell update". SS shall transmit CELL UPDATE CONFIRM message to end the procedure.

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1				The UE is in the CELL_PCH state. SS waits until T305 has expired. Wait for CELL UPDATE message and then verify that the time of arrival of this message is in the range of T305 value +/- 10 % after it entered CELL_PCH state
2	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "periodical cell update".
3	←		CELL UPDATE CONFIRM	
3a	→		UTRAN MOBILITY INFORMATION CONFIRM	
4	←		UTRAN MOBILITY INFORMATION	IE "T305" is set to 'infintiy'.
5	→		UTRAN MOBILITY INFORMATION CONFIRM	
6				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.4.
7	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
8	←		CELL UPDATE CONFIRM	UE enters CELL_PCH state after receiving~~transmitting~~ this message.
9				SS waits for 720 minutes and checks that no CELL UPDATE message is transmitted on uplink PRACH channel.

Step	Direction		Message	Comment
	UE	SS		
10				SS applies the downlink transmission power settings, according to the values in columns "T0" of table 8.3.1.4.
11	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
12	←		CELL UPDATE CONFIRM	
12a	→		UTRAN MOBILITY INFORMATION CONFIRM	
13	←		UTRAN MOBILITY INFORMATION	IE "T305" is set to '5'.
14	→		UTRAN MOBILITY INFORMATION CONFIRM	
15				SS applies the downlink transmission power settings, according to the values in columns "T1" of table 8.3.1.4.
16	→		CELL UPDATE	The UE shall move to CELL_FACH state and transmits this message with the IE "Cell update cause" set to "cell reselection".
17	←		CELL UPDATE CONFIRM	UE enters CELL_PCH state after receiving~~transmitting~~ this message.
18				SS wait for T305 timer to expire
19	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell update".
20	←		CELL UPDATE CONFIRM	

Specific Message Contents

CELL UPDATE (Step 2 and 19)

The same message found in ~~Annex A~~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'
Cell Update Cause	Check to see if set to 'periodical cell updating'

CELL UPDATE (Step 7, 11 and 16)

The same message found in ~~Annex A~~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'
Cell Update Cause	Check to see if set to "cell reselection"

~~CELL UPDATE CONFIRM (Step 20)~~

~~Use the same message sub-type found in Annex A.~~

CELL UPDATE CONFIRM (Step 3 and 12)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9 , with the following exceptions:

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

CELL UPDATE CONFIRM (Step 8, ~~and~~ 17 and 20)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9 , with the following exceptions:

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

UTRAN MOBILITY INFORMATION (Step 4 and 13)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9 , 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	
- T305	Set to 'infinity' in step 4 and '5' in step 13

8.3.1.4.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, it shall then move to CELL_FACH state and transmits a CELL UPDATE message with the IE "Cell update cause" set to "periodical cell update".

After step 3, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 4, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

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

After step 8 and before step 10, the UE shall not transmit any CELL UPDATE messages.

After step 10, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 12, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 13, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 15, the UE shall transmit a CELL UPDATE message with IE "cell update cause" set to "cell reselection" on the uplink CCCH.

After step 18 the UE shall transmit a CELL UPDATE message stating the cell update cause to be periodic updating.

8.3.1.5 Cell Update: UL data transmission in URA_PCH

8.3.1.5.1 Definition

8.3.1.5.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

2> if the UE is in URA_PCH or CELL_PCH state; and

2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

3> perform cell update using the cause "uplink data transmission".

…

~~This procedure is to update UTRAN with the current cell information if the UE wants to transmit uplink data while in URA_PCH state.~~

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.5.3 Test purpose

1. To confirm that the UE executes a cell update procedure when the UE transmits uplink data if the UE is in URA_PCH state.

8.3.1.5.4 Method of test

Initial Condition

System Simulator: 1cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

SS sends a MEASUREMENT CONTROL message to trigger UE to measure the traffic volume on RACHorCPCH in a traffic volume measurement with measurement validity set to "all-states" and to report periodically by the MEASUREMENT REPORT message using UM RLC. UE shall send MEASUREMENT REPORT message to SS using UM RLC on DCCH. SS then transmit a PHYSICAL CHANNEL RECONFIGURATION ~~RADIO BEARER RELEASE~~ message with IE "RRC State Indicator" is set to "URA_PCH". The UE shall reply with ~~RADIO BEARER RELEASE~~ PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to URA_PCH state. UE shall detect that the periodical timer for measurement reporting has elapsed and attempt to transmit a MEASUREMENT REPORT message. The UE then moves to CELL_FACH state and transmits a CELL UPDATE message to the SS on the uplink CCCH, with the IE "Cell update cause" set to value "uplink data transmission". After receiving such a message, SS transmits CELL UPDATE CONFIRM message. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. The UE shall stay in CELL_FACH state and transmit MEASUREMENT REPORT message using UM RLC on DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state.
2	←		MEASUREMENT CONTROL	
3	→		MEASUREMENT REPORT	
4	←		PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RELEASE~~	IE "RRC State Indicator" set to "URA_PCH"
5	→		~~RADIO BEARER RELEASE~~ PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to URA_PCH state.
6	→		CELL UPDATE	The UE shall move to CELL FACH state with the message set to "uplink data transmission" in IE "Cell update cause".
7	←		CELL UPDATE CONFIRM	See message content.
7a	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in ~~Annex A~~TS34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Measurement Reporting Mode	
- Measurement Report Transfer Mode	Unacknowledged mode RLC
- Measurement Reporting/Event Trigger Reporting Mode	Periodical
CHOICE Measurement Type	Traffic volume measurement
- Traffic volume measurement objects	1
- Uplink transport channel type	RACHorCPCH
- Traffic volume measurement quantity	
- Measurement quality	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	All states
- CHOICE reporting criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64000

PHYSICAL CHANNEL RECONFIGURATION ~~RADIO BEARER RELEASE~~ (Step 4)

Use the same message sub-type found in ~~Annex A~~TS34.108 clause 9 , with the following exceptions:

Information Element	Value/remark
RRC State Indicator	URA_PCH
UTRAN DRX cycle length coefficient	3
~~RB information to release list~~	
~~- RB identity~~	~~20 or 21 (for radio access bearer)~~
~~RB information to be affected list~~	~~Not Present~~
~~UL Transport channel information common for all transport channel~~	~~Not Present~~
~~Deleted TrCH information list~~	~~Not Present~~
~~Added or Reconfigured UL TrCH information list~~	~~Not Present~~
~~DL Transport channel information common for all transport channel~~	~~Not Present~~
~~Deleted TrCH information list~~	~~Not Present~~
~~Added or Reconfigured UL TrCH information list~~	~~Not Present~~
~~CHOICE channel requirement~~	~~Not Present~~
~~Downlink information per radio link list~~	~~Not Present~~

CELL UPDATE (Step 6)

The same message found in ~~Annex A~~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'
Cell Update Cause	Check to see if set to 'uplink data transmission'

CELL UPDATE CONFIRM (Step 7)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9 , with the following exceptions:

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

MEASUREMENT REPORT (Step 3 and 8)

Only the message type IE in this message will be checked.

RADIO BEARER RELEASE COMPLETE (Step 5)

Only the message type IE in this message will be checked.

8.3.1.5.5 Test requirement

After step 2, UE shall transmit a MEASUREMENT REPORT message to SS using UM RLC on DCCH when 64 seconds has elapsed since the acknowledgement of MEASUREMENT CONTROL message.

After step 4, UE shall transmit a ~~RADIO BEARER RELEASE~~ PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to URA_PCH state.

After step 5, the UE shall move to CELL_FACH state to initiate a cell update procedure and transmits a CELL UPDATE message which is set to "uplink data transmission" in IE "Cell update cause".

After step 7, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 7a, UE shall transmit MEASUREMENT REPORT message to SS using AM RLC on DCCH.

8.3.1.6 Cell Update: UL data transmission in CELL_PCH

8.3.1.6.1 Definition

8.3.1.6.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

 1> Uplink data transmission:

  2> if the UE is in URA_PCH or CELL_PCH state; and

  2> if the UE has uplink RLC data PDU or uplink RLC control PDU on RB1 or upwards to transmit:

   3> perform cell update using the cause "uplink data transmission".

 …

~~This procedure is to update UTRAN with the current cell of the UE if the UE wants to transmit uplink data when the UE is in CELL_PCH state.~~

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.6.3 Test purpose

1. To confirm that the UE executes a cell update procedure when the UE transmits uplink data if the UE is in CELL_PCH state.

8.3.1.6.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

The UE is in the CELL_FACH state. SS sends a MEASUREMENT CONTROL message to trigger UE to measure the traffic volume on RACHorCPCH in a traffic volume measurement with measurement validity set to "all-states" and to report periodically by the MEASUREMENT REPORT message using UM RLC. UE shall send a MEASUREMENT REPORT message to SS using UM RLC on DCCH. SS then transmits a PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RELEASE~~ message with IE "RRC State Indicator" is set to "CELL_PCH". The UE shall reply with ~~RADIO BEARER RELEASE~~ PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to CELL_PCH state. UE shall detect that the periodical timer for measurement reporting has elapsed and attempt to transmit a MEASUREMENT REPORT message. The UE then moves to CELL_FACH state and transmits a CELL UPDATE message to the SS on the uplink CCCH, with the IE "Cell update cause" set to value "uplink data transmission". After receiving such a message, SS transmits a CELL UPDATE CONFIRM message. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH to acknowledge the receipt of the new UE identities. The UE shall stay in CELL_FACH state and transmit a MEASUREMENT REPORT message using UM RLC on DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state.
2	←		MEASUREMENT CONTROL	
3	→		MEASUREMENT REPORT	
4	←		PHYSICAL CHANNEL RECONFIGURATION~~RADIO BEARER RELEASE~~	IE "RRC State Indicator" set to "CELL_PCH"
5	→		~~RADIO BEARER RELEASE~~ PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE moves to CELL_PCH state.
6	→		CELL UPDATE	The UE moves to CELL FACH state and transmit this message which is set to "uplink data transmission" in IE "Cell update cause".
7	←		CELL UPDATE CONFIRM	See message content .
7a	→		UTRAN MOBILITY INFORMATION CONFIRM	
8	→		MEASUREMENT REPORT	

Specific Message Contents

MEASUREMENT CONTROL (Step 2)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9 with the following exceptions:

Information Element	Value/remark
Measurement Reporting Mode	
- Measurement Report Transfer Mode	Unacknowledged mode RLC
- Measurement Reporting/Event Trigger Reporting Mode	Periodical
CHOICE Measurement Type	Traffic volume measurement
- Traffic volume measurement objects	1
- Uplink transport channel type	RACHorCPCH
- Traffic volume measurement quantity	
- Measurement quality	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	All states
- CHOICE reporting criteria	Periodical reporting criteria
- Amount of reporting	Infinity
- Reporting interval	64000

PHYSICAL CHANNEL RECONFIGURATION ~~RADIO BEARER RELEASE~~ (Step 4)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9 , with the following exceptions:

Information Element	Value/remark
RRC State Indicator	CELL_PCH
UTRAN DRX cycle length coefficient	3
~~RB information to release list~~	
~~- RB identity~~	~~20 or 21 (for radio access bearer)~~
~~RB information to be affected list~~	~~Not Present~~
~~UL Transport channel information common for all transport channel~~	~~Not Present~~
~~Deleted TrCH information list~~	~~Not Present~~
~~Added or Reconfigured UL TrCH information list~~	~~Not Present~~
~~DL Transport channel information common for all transport channel~~	~~Not Present~~
~~Deleted TrCH information list~~	~~Not Present~~
~~Added or Reconfigured UL TrCH information list~~	~~Not Present~~
~~CHOICE channel requirement~~	~~Not Present~~
~~Downlink information per radio link list~~	~~Not Present~~

CELL UPDATE (Step 6)

The same message found in ~~Annex A~~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'
Cell Update Cause	Check to see if set to 'uplink data transmission'

CELL UPDATE CONFIRM (Step 7)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9 , with the following exceptions:

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

MEASUREMENT REPORT (Step 3 and 8)

Only the message type IE in this message will be checked.

RADIO BEARER RELEASE COMPLETE (Step 5)

Only the message type IE in this message will be checked.

8.3.1.6.5 Test requirement

After step 2, UE shall transmit a MEASUREMENT REPORT message to SS using UM RLC on DCCH when 64 seconds has elapsed since the acknowledgement of MEASUREMENT CONTROL message.

After step 4, UE shall transmit a ~~RADIO BEARER RELEASE~~ PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and move to CELL_PCH state.

After step 5, the UE shall move to CELL_FACH state to initiate a cell update procedure and transmits a CELL UPDATE message which is set to "uplink data transmission" in IE "Cell update cause".

After step 7, the UE shall transmit a UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH using AM RLC.

After step 7a, UE shall transmit a MEASUREMENT REPORT message to SS using UM RLC on DCCH.

8.3.1.9 Cell Update: re-entering of service area after T305 expiry and being out of service area

8.3.1.9.1 Definition

8.3.1.9.2 Conformance requirement

A UE shall initiate the cell update procedure in the following cases:

1> Uplink data transmission:

…

1> Paging response:

…

1> Radio link failure:

…

1> Re-entering service area:

2> if none of the criteria for performing cell update with the causes specified above in the current subclause is met; and

2> if the UE is in CELL_FACH or CELL_PCH state; and

2> if the UE has been out of service area and re-enters service area before T307 or T317 expires:

3> perform cell update using the cause "re-entering service area".

…

When the T305 expires and the UE detects that it is "out of service area" as specified in TS 25.331 subclause 8.5.5.1, the UE shall

1> start timer T307;

…

If the UE detects "in service area" according to TS 25.331 subclause 8.5.5.2 and timer T307 or T317 is running, the UE shall:

1> check the value of V302; and

1> if V302 is equal to or smaller than N302:

2> in case of a cell update procedure:

3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;

3> 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:

…

~~When a UE detects that it's out of service area after experiencing a T305 timer expiry, it shall try to search for a suitable cell to camp on. At the same time, it shall start timer T307. If the UE subsequently re-enters the service area of a cell before T307 expires, it shall perform a cell update procedure.~~

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.9.3 Test purpose

1. To confirm that the UE performs a cell search after experiencing an "out of service area" condition following the expiry of timer T305.
2. To confirm that the UE initiates cell updating procedure if it manages to re-enter the service area.

8.3.1.9.4 Method of test

Initial Condition

System Simulator: 1 cell.

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.9

Parameter	**Unit**	**Cell 1**	
		T0	T1
UTRA RF Channel Number		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-80
P-CCPCH RSCP (TDD)	dBm	-60	-80

Table 8.3.1.9 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in the CELL_FACH state. The content of the SYSTEM INFORMATION BLOCK TYPE 3 and 4 is modified. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.9 so that S<0. Following the expiry of periodic cell updating timer T305 according to the system information, the UE shall detect that it is out of service area. Within the time interval equivalent to T307 timer value, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.9 so that S>0. The UE shall find that it is back in service area, and transmit a CELL UPDATE message to the SS on the uplink CCCH. In this message, the IE "Cell update cause" shall be set to "re-entered service area". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message with the IE "RRC State Indicator" set "CELL_PCH" on the downlink DCCH. The UE shall enter CELL_PCH state. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.9 so that S<0. Following the expiry of periodic cell updating timer T305 according to the system information, the UE shall detect that it is out of service area. Within the time interval equivalent to T307 timer value, SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.9 so that S>0. The UE shall find that it is back in service area, move to CELL_FACH and transmits a CELL UPDATE message to the SS on the uplink CCCH. In this message, the IE "Cell update cause" shall be set to "re-entered service area". After the SS receives this message, it transmits a CELL UPDATE CONFIRM message on the downlink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in the CELL_FACH state of cell 1.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3 and 4	SS changes the contents of MASTER INFORMATION BLOCK and SYSTEM INFORMATION BLOCK (see specific message contents).
1b	←		SYSTEM INFORMATION CHANGE INDICATION	
2				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.9 so that its S value falls below 0.
3				The UE shall detect a "out of service" condition upon expiry of timer T305 and it shall search for other cells to camp on. (T307 timer starts)
4				SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.9.
5	→		CELL UPDATE	The value "re-entered service area" shall be found in IE "Cell update cause" in this message
6	←		CELL UPDATE CONFIRM	"RRC State Indicator" is set to "CELL_PCH"
7				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.9 so that its S value falls below 0 and waits until T305 has expired.
8				SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.9.
9	→		CELL UPDATE	UE shall move to CELL_FACH. It shall transmit this message with cell update cause set to "re-entered service area"
10	←		CELL UPDATE CONFIRM	

Specific Message Contents

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Tag	2

SYSTEM INFORMATION BLOCK TYPE 3 and 4 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
Qrxlevmin	-70

SYSTEM INFORMATION CHANGE INDICATION (Step 1b)

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value tag	2

CELL UPDATE (Step 5 and 9)

The same message found in ~~Annex A~~ 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	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 're-entered service area'

CELL UPDATE CONFIRM (Step 6 and 10)

Use the same message sub-type found in ~~Annex A~~ TS34.108 clause 9, with the following exception.

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

8.3.1.9.5 Test requirement

After step 4 the UE shall transmit a CELL UPDATE message in which the IE "Cell update cause" is set to the value "re-entered service area".

After step 8 the UE shall move to CELL_FACH and then transmit a CELL UPDATE message, with the IE "Cell Update Cause" set to "re-entered service area".

8.3.1.10 Cell Update: expiry of T307 after T305 expiry and being out of service area

8.3.1.10.1 Definition

8.3.1.10.2 Conformance requirement

When the T307 expires, the UE shall:

1> move to idle mode;

1> release all dedicated resources;

1> perform other actions when entering idle mode from connected mode as specified in TS 25.331 subclause 8.5.2;

1> and the procedure ends.

~~This procedure is required to cater for the case of a failure to update UTRAN with the current cell, after the expiry of T307. In this case, the UE shall return to idle mode and perform cell reselection if possible.~~

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.10.3 Test purpose

1. To confirm that the UE moves to idle mode after the expiry of T307, indicating that it is out of service area when attempting to perform a periodic cell updating procedure.

8.3.1.10.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

Table 8.3.1.10

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Ch. 1	
CPICH Ec (FDD)	dBm/3.84MHz	-60	-80
P-CCPCH RSCP (TDD)	dBm	-60	-80

Table 8.3.1.10 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in CELL_FACH state at the start of the test. Before the expiry of periodic cell updating timer T305, the content of the SYSTEM INFORMATION BLOCK TYPE 3 and 4 is modified. After T305 expires, UE shall transmit CELL UPDATE message with IE "cell update cause" set to "periodical cell update". SS shall transmit CELL UPDATE CONFIRM message. Now the UE and SS are synchronized. Immediately after the cell update procedure is finalized, SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.10 so that S<0 and this results in a "out of service area" condition. The SS continues to listen to the uplink channel to detect possible attempts to perform a cell updating procedure. The UE shall not send any CELL UPDATE message on the uplink CCCH, instead it triggers timer T307 and T305. After the expiry of timer T305+T307+10% margin, ~~and~~ SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.10 so that S>0, the UE shall enter idle state. SS waits for 5s and then calls for generic procedure C.1 to check that UE is in idle mode state. ~~This is confirmed by the SS when it sends a PAGING TYPE 1 message to the UE using UE identity, and the UE shall respond to the message.~~

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is brought to CELL_FACH state.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3 and 4	SS changes the contents of MASTER INFORMATION BLOCK and SYSTEM INFORMATION BLOCK (see specific message contents).
1b	←		SYSTEM INFORMATION CHANGE INDICATION	
1c	→		CELL UPDATE	IE "Cell update cause" shall be set to "periodical cell update".
1d	←		CELL UPDATE CONFIRM	
2a				SS configures its downlink transmission power settings according to columns "T1" in table 8.3.1.10 so that the cell is no longer suitable for camping. The UE shall detect that it is out of service area and refrains from transmitting CELL UPDATE message due to periodic cell updating.
2b				SS waits (T305+T307) +10% for UE to enter idle mode.
3				The UE detects the expiry of timer T305 and it searches for other cells to camp on. After the expiry of timer T307, the UE shall enter idle mode. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.1.10 so that the cell is suitable for camping. SS waits for 5s.
~~4~~	~~←~~		~~PAGING TYPE 1~~	~~SS pages the UE at its assigned paging occasion using the allocated UE identity.~~
~~5~~	~~→~~		~~RRC CONNECTION REQUEST~~	~~The UE shall respond to this page as it has already entered the idle mode.~~
4	←→		CALL C.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

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Tag	2

SYSTEM INFORMATION BLOCK TYPE 3 and 4 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
Qrxlevmin	-70

SYSTEM INFORMATION CHANGE INDICATION (Step 1b)

Information Element	Value/remark
Message Type	
BCCH modification info	
MIB Value tag	2

CELL UPDATE (Step 1C)

The same message found in Annex A 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'
Cell Update Cause	Check to see if set to 'periodical cell updating'

PAGING TYPE 1 (Step 4)

Use the same message type found in ~~Annex A~~34.108 clause 9 , with the following exception.

Information Element	Value/remark
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	Supported Domain (PS Domain or CS Domain)
- CHOICE UE Identity	IMSI
- IMSI	Set to the same IMSI value stored in the TEST USIM card.

8.3.1.10.5 Test requirement

~~After step 4 the UE shall transmit a RRC CONNECTION REQUEST message to respond to a PAGING TYPE 1 message.~~

After step 3 the UE shall move to idle mode.

8.3.1.11 Cell Update: Success after T302 time-out

8.3.1.11.1 Definition

8.3.1.11.2 Conformance requirement

If any or several of the following conditions are true:

- expiry of timer T302;

…

the UE shall:

1> check whether it is still in "in service area";

1> in case of a cell update procedure:

  - 2> clear any entry for the CELL UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

- 1> if V302 is equal to or smaller than N302, the UE shall:
  - 2> in case of a cell update procedure:
    - 3> set the contents of the CELL UPDATE message according to TS 25.331 subclause 8.3.1.3;
    - 3> 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, the UE shall:

  …

~~The UE transmits a CELL UPDATE message to the UTRAN when it needs to update the UTRAN with the current cell of the UE. When the UE does not receive a CELL UPDATE CONFIRM message upon expiry of timer T302, the UE transmits a CELL UPDATE message repeatedly until its internal counter V302 counter is greater than N302.~~

Reference

3GPP TS 25.331 clause 8.3.1

8.3.1.11.3 Test purpose

1. To confirm that the UE repeats the transmission of CELL UPDATE message after failing to receive any response from the SS before T302 timer expires.

8.3.1.11.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108.

Test Procedure

At the start of the test, the UE is brought to CELL_FACH state. When the UE detects the expiry of periodic cell updating timer T305 according to the system information, the UE transmits a CELL UPDATE message to the SS on the uplink CCCH. The IE "Cell update cause" in this message shall be set to "periodical cell update". SS ignores this message, and the UE shall then re-transmit a CELL UPDATE message after the expiry of timer T302. When the SS has received (N302+1) such messages, it transmits a CELL UPDATE CONFIRM message with new values for "C-RNTI" to the UE. Finally, the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH. 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				The UE starts from CELL_FACH state. SS initializes its internal counter K to 0 and waits until the expiry of T305 timer.
2	→		CELL UPDATE	The value "periodical cell update" shall be set in IE "Cell update cause".
3				If K is equal to N302 then proceeds to step 5.
4				SS increments counter K, transmits no response to the UE and waits for an additional period equal to the value of timer T302. The next step is step 2.
5	←		CELL UPDATE CONFIRM	The message includes IEs "new C-RNTI". The IE "RRC State Indicator" is set to "CELL_FACH".
6	→		UTRAN MOBILITY INFORMATION CONFIRM	
7	←→		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

CELL UPDATE (Step 2)

The same message found in ~~Annex A~~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	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 'Periodic cell updating'

CELL UPDATE CONFIRM (Step 5)

Use the same message sub-type found in ~~Annex A~~TS34.108 clause 9 , with the following exception:

Information Element	Value/remark
New C-RNTI	Set to an arbitrary string different from '0000 0000 0000 0001'

8.3.1.11.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305 then transmit a CELL UPDATE message on the uplink CCCH, setting "periodical cell update" into IE "Cell update cause".

After step 2 the UE shall re-transmits a CELL UPDATE message after the expiry of timer T302. A total of (N302+1) transmissions of CELL UPDATE message shall be detected in SS.

After step 5 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH and stay at CELL_FACH state.

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~~of~~ 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~~-1~~, while cell 2 and cell 3 is inactive.

UE: CS-CELL_FACH_Initial (state 6-2) or PS-CELL_FACH_Initial (state 6-4) in cell 1 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.

Test Procedure

The SS activates Cell 1-3 according table 8.3.1.21.

Table 8.3.1.21

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		
PLMN identity		PLMN-1			PLMN-2			PLMN-3		
CPICH Ec~~RSCP~~ (FDD)	dBm	-73	-79	-79	Cell 2 is switched off	-73	-79	Cell 3 is switched off	Cell 3 is switched off	-73
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 T0, the SS activates Cell 1.

b) At T1, the SS activates Cell 2, and monitors Cell 2 for received messages from UE.

c) UE re-selects to Cell 2, and sends a CELL UPDATE

d) At T2, the SS activates Cell 3, and monitors Cell 3 for received messages from UE.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				At T0: UE is camped on Cell 1 and registered to PLMN1
2	→		CELL UPDATE	At T1: Sent in Cell 2 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

CELL UPDATE CONFIRM (Step 4)

Use the same message sub-type titled "CELL UPDATE CONFIRM message" in ~~Annex A~~TS34.108 clause 9 with following exceptions:

Information Element	Value/remark
- New C-RNTI	Present
- URA identity	Not present

8.3.1.21.5 Test requirement

The UE shall send a CELL UPDATE at T1 but refrain from sending a cell update (or any other message) after T2.

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 location registration 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: CS-CELL_FACH_Initial (state 6-2) or PS-CELL_FACH_Initial (state 6-4) in cell 1 as specified in clause 7.4 of TS 34.108, depending on the CN domain(s) supported by the UE.

UE: Shall have an empty list of LAs stored that are "forbidden location areas for roaming". The UE shall be registered to CS through cell 1 with LA-ID 1.

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 ~~RSCP~~ (FDD)	dBm	-73	-79	Cell 2 is switched off	-73
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" ~~and "T2" are~~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.

c) The UE performs a location registration 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 location registration 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.

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	The value "Normal event" is set in IE "Release cause"
3	→		RRC CONNECTION RELEASE COMPLETE	
4	→		RRC CONNECTION REQUEST	The value "Registration" is set in IE "Establishment cause"
5	←		RRC CONNECTION SETUP	
6	→		RRC CONNECTION SETUP COMPLETE	
7	→		INITIAL DIRECT TRANSFER	Includes MM message LOCATION UPDATING REQUEST
8	←		DOWNLINK DIRECT TRANSFER	Includes MM message LOCATION UPDATING REJECT with reject cause "Roaming not allowed in this location area"
9	←		RRC CONNECTION RELEASAE	The value "Normal event" is set in IE "Release cause"
10	→		RRC CONNECTION RELEASE COMPLETE	The value "Normal event" is set in IE "Release cause"
11	→		RRC CONNECTION REQUEST	Sent in Cell 1. The value "Registration" is set in IE "Establishment cause"
12	←		RRC CONNECTION SETUP	
13	→		RRC CONNECTION SETUP COMPLETE	
14	→		INITIAL DIRECT TRANSFER	Includes MM message LOCATION UPDATING REQUEST
15	←		DOWNLINK DIRECT TRANSFER	Includes MM message LOCATION UPDATING ACCEPT

Specific Message Contents

~~FFS~~

CELL UPDATE (Step 1)

The same message found in Annex A 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'
Cell Update Cause	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 3, 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

The UE shall send a CELL UPDATE in Cell 2 at T1, attempt Location registration in Cell 2, but, since the location registration is rejected in Cell 2, not send any more messages in Cell 2

8.3.2 URA Update

8.3.2.1 URA Update: Change of URA

8.3.2.1.1 Definition

8.3.2.1.2 Conformance requirement

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

  …

    3> perform URA update using the cause "change of URA".

When initiating the URA update procedure, the UE shall:

1> stop timer T305;

1> set the variables PROTOCOL_ERROR_INDICATOR, FAILURE_INDICATOR, UNSUPPORTED_CONFIGURATION and INVALID_CONFIGURATION to FALSE;

1> move to CELL_FACH state, if not already in that state;

1> set CFN in relation to SFN of current cell according to TS 25.331 subclause 8.5.15;

1> in case of a URA update procedure:

  2> set the contents of 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.

1> set counter V302 to 1;

1> start timer T302 when the MAC layer indicates success or failure in transmitting the message.

In case of URA update procedure the UE shall transmit a URA UPDATE message.

The UE shall set the IEs in the URA UPDATE message as follows:

1> set the IE "U-RNTI" to the value of the variable U_RNTI;

1> set the IE "URA update cause" corresponding to which cause as specified in TS 25.331 subclause 8.3.1.2 that is valid when the URA UPDATE message is submitted to lower layers for transmission;

2> if the value of the variable PROTOCOL_ERROR_INDICATOR is TRUE:

…

2> if the value of the variable PROTOCOL_ERROR_INDICATOR is FALSE:

3> if the value of the variable INVALID_CONFIGURATION is TRUE:

…

3> if the value of the variable INVALID_CONFIGURATION is FALSE:

4> set the IE "Protocol error indicator" to FALSE.

If the URA UPDATE CONFIRM message:

- does not include "CN information elements"; and
- does not include the IE "Ciphering mode info"; and
- does not include the IE "Integrity protection mode info"; and
- does not include the IE "New U-RNTI"; and
- does not include the IE "New C-RNTI":

the UE shall:

1> transmit no response message.

…

If the new state is CELL_PCH or URA_PCH, the response message shall be transmitted in CELL_FACH state, and the UE shall:

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

2> for each radio bearer in the variable PDCP_SN_INFO:

3> if the IE "RB started" in the variable ESTABLISHED_RABS is set to "started":

4> configure the RLC entity for that radio bearer to "continue".

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

1> continue with the remainder of the procedure.

~~This procedure is to update UTRAN with the current URA of the UE after a change of URA has occurred in URA_PCH state. It may also be used for supervision of the RRC connection, even if no change of URA takes place.~~

Reference

3GPP TS 25.331 clause 8.3.1

8.3.2.1.3 Test purpose

1. To confirm that the UE executes an URA update procedure after the successful change of URA.

2. To confirm that the UE responds correctly when it re-selects to a new cell while waiting for URA UPDATE CONFIRM message from SS.

8.3.2.1.4 Method of test

Initial Condition

System Simulator: ~~3 cells - Cell 1 and 2 are active with URA-ID 1 and the downlink transmission power shown in column marked "T0" in table 8.3.2.1, while cell 3 is active with URA-ID 2.~~4 cells: The URA-ID and transmission power for each cell is shown in Table 8.3.2.1, where the initial condition is shown in column "T0".

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, with URA-ID 1 from the list of URA-ID in cell 1.

Test Procedure

Table 8.3.2.1

~~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 (FDD)~~	~~dBm/3.84MHz~~	~~-60~~	~~-75~~	~~-75~~	~~-75~~	~~-60~~	~~-75~~	~~-75~~	~~-75~~	~~-60~~
~~P-CCPCH RSCP (TDD)~~	~~dBm~~	~~-60~~	~~-75~~	~~-75~~	~~-75~~	~~-60~~	~~-75~~	~~-75~~	~~-75~~	~~-60~~

Parameter	**Unit**	**Cell 1**				**Cell 2**				**Cell 3**				**Cell 4**			
		T0	T1	T2	T3	T0	T1	T2	T3	T0	T1	T2	T3	T0	T1	T2	T3
UTRA RF Channel Number		Ch. 1				Ch. 1				Ch. 1				Ch. 1			
CPICH Ec	dBm/3.84MHz	-60	-75	-75	-75	-75	-60	-75	-75	-75	-75	-60	-75	-75	-75	-75	-60
P-CCPCH RSCP (TDD)	dBm	-60	-75	-75	-75	-75	-60	-75	-75	-75	-75	-60	-75	-75	-75	-75	-60
URA ID		URA-ID 1				URA-ID 1,3 and 4				URA-ID 2				no SIB2			

The test begins with the downlink power transmission of all cells set according to 'T0' column in table 8.3.2.1. The UE is in the URA_PCH state and assigned with only 1 URA identity in cell 1: URA-ID 1. The SS then adjusts the transmission power again according to the 'T1' column. This is expected to cause the UE to perform a cell reselection to cell 2. Since ~~same~~ URA-ID 1 ~~URA identity~~ is also broadcasted in cell ~~1 and~~ 2, the UE shall not perform any URA update procedure due to the change of URA. Next SS adjusts the transmission power according to 'T2' column. UE shall perform a cell reselection to cell 3 and when the UE 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 a URA UPDATE CONFIRM message, which includes the IEs "RRC State Indicator" and IE "URA-ID" to the UE on the downlink DCCH. The IE "RRC State Indicator" is set to "URA_PCH". UE returns to URA_PCH state in cell 3 without sending any uplink response message. Next SS adjusts the transmission power according to 'T1' column. UE shall re-select to cell 2 and transmit a 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 a URA UPDATE message to SS. ~~Finally~~ SS shall transmit URA UPDATE CONFIRM message to UE. Next the SS adjusts the transmission power according to the 'T3' column. The UE shall re-select to cell 4 and send a URA UPDATE message since no SIB2 is broadcasted in this cell. When the UE receives a URA UPDATE CONFIRM message including a URA identity, the UE will again send a URA UPDATE message. When receiving this last message, the SS releases the RRC connection.

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				SS set the power transmission of all cells according to column 'T1' of table 8.3.2.1.
3				UE shall perform a cell reselection but shall not transmit URA UPDATE message with the update cause of "change of URA".
4				SS set the power transmission of all cells according to column 'T2' of table 8.3.2.1.
5	→		URA UPDATE	The UE shall perform a cell reselection first and when it finds that its current URA-ID 1 is not in the newly 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 comprises IE "RRC State Indicator" set "URA_PCH", and also IE "URA Identity" equals to "URA-ID 2".
7				SS set the power transmission of all cells according to column 'T1' of table 8.3.2.1.
8	→		URA UPDATE	
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 8.3.2.1.
10	→		URA UPDATE	
11	←		URA UPDATE CONFIRM	
12				SS set the power transmission of all cells according to column 'T3' of table 8.3.2.1.
13	→		URA UPDATE	The UE shall perform a cell reselection first and when it finds that no URA-ID is broadcasted in this cell, it shall then transmit this message and set value "change of URA" into IE "URA update cause".
14	←		URA UPDATE CONFIRM	Message comprises IE "RRC State Indicator" set to "URA_PCH", and also IE "URA Identity" equals to "URA-ID 2".
15	→		URA UPDATE	
16	←		RRC CONNECTION RELEASE	
17	->		RRC CONNECTION RELEASE COMPLETE	
18				UE enters idle mode

Specific Message Contents

SYSTEM INFORMATION BLOCK TYPE 2

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exceptios.

Cell 1:

Information Element	Value/remark
- URA identity list	
- URA identity	0000 0000 0000 0001B

Cell 2:

Information Element	Value/remark
- URA identity list	
- URA identity	0000 0000 0000 0011B
- URA identity	0000 0000 0000 0001B
- URA identity	0000 0000 0000 0100B

Cell 3:

Information Element	Value/remark
- URA identity list	
- URA identity	0000 0000 0000 0010B

Cell 4:

No SYSTEM INFORMATION BLOCK TYPE 2 is broadcasted in cell 4.

URA UPDATE (Step 5, 8, 10, 13, and 15 ~~and 10~~)

The same message found in ~~Annex A~~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	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 'change of URA'

URA UPDATE CONFIRM (Step 6)

Use the same message sub-type found in ~~Annex A~~TS34.108 clause 9 , with the following exceptions:

Information Element	Value/remark
URA identity	URA-ID 2

URA UPDATE CONFIRM (Step 11)

Use the same message sub-type found in ~~Annex A~~TS34.108 clause 9 , with the following exceptions:

Information Element	Value/remark
URA identity	URA-ID 1

8.3.2.1.5 Test requirement

After step 2 the UE shall not transmit a URA UPDATE message with update cause "change of URA"..

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 a 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 a transmit URA UPDATE message setting value "change of URA" into IE "URA update cause".

After step 9 the UE shall find the new cell and transmit a URA UPDATE message setting value "change of URA" into IE "URA update cause".

After step 12 the UE shall find that no URA-ID is broadcasted in the cell, move to CELL_FACH state and transmit a URA UPDATE message setting the update cause to "change of URA".

After step 14 the UE shall find that no URA-ID is broadcasted in the cell and transmit a URA UPDATE message setting the update cause to "change of URA".

8.3.2.3 URA Update: re-entering of service area ~~after T305 expiry~~

8.3.2.3.1 Definition

8.3.2.3.2 Conformance requirement

When the T305 expires and the UE detects that it is "out of service area" as specified in TS 25.331 subclause 8.5.5.1, the UE shall

1> start timer T307;

…

If the UE detects "in service area" according to TS 25.331 subclause 8.5.5.2 and timer T307 or T317 is running, the UE shall:

- 1> check the value of V302; and
- 1> if V302 is equal to or smaller than N302:
  - 2> in case of a URA update procedure:
    - 3> set the contents of the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;
    - 3> 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:
  - …

~~This procedure is to update UTRAN with the current URA of the UE if the UE detects that it is out of service area after the expiry of timer T305, and then subsequently re-enters the service area before the expiry of T3107.~~

Reference

3GPP TS 25.331 clause 8.3.1

8.3.2.3.3 Test purpose

To confirm that the UE executes a URA update procedure when the UE re-enters the service area before the expiry of timer T31~~0~~7, after expiry of T316~~, after being out of service area at the expiry of timer T305~~.

8.3.2.3.4 Method of test

Initial Condition

System Simulator: 1 cell with URA-ID 1 and the downlink transmission power shown in column marked "T0" in table 8.3.2.3.

UE: URA_PCH (state 6-13) as specified in clause 7.4 of TS 34.108, with URA-ID 1 in the list of URA-ID.

Test Procedure

Table 8.3.2.3

Parameter	Unit	Cell 1	
		T0	T1
UTRA RF Channel Number		Ch. 1	
CPICH Ec	dBm/3.84MHz	-60	-80
P-CCPCH RSCP (TDD)	dBm	-60	-80

Table 8.3.2.3 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is initially in URA_PCH state. The content of the SYSTEM INFORMATION BLOCK TYPE 3 and 4 is modified. After T305 expires, UE shall transmit a URA UPDATE message with IE "URA update cause" set to "periodical ura update". SS shall transmit URA UPDATE CONFIRM message. Immediately after the URA update procedure is finalized, the SS configures its downlink transmission power settings according to columns "T1" in table 8.3.2.3 so that S<0. When the UE detects ~~the expiry of timer T305 according to the system information, the UE finds~~ that it is out of service area, it will start T316~~. The UE is expected to~~ and search for a cell to camp. ~~Then~~ SS configures its downlink transmission power settings according to columns "T0" in table 8.3.2.3 within a time equivalent to T316+T317 but larger than T316, so that S>0. The UE shall detect that it returns back in ~~to normal~~ service area before T31~~0~~7 expires. Since t~~T~~he UE has ~~shall~~ moved to CELL_FACH state on expiry of T316, it shall now ~~and starts~~ transmit~~ting~~ a CELL~~URA~~ UPDATE message which contains the value "re-entering service area~~periodical URA update~~" in IE "Cell~~URA~~ update cause" to the SS on the uplink CCCH. After the SS receives this message, it transmits a CELL~~URA~~ UPDATE CONFIRM message which includes the IE "new C-RNTI", and "new U-RNTI" to the UE on the downlink DCCH. Then the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE starts operating from URA_PCH state.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3 and 4	SS changes the contents of MASTER INFORMATION BLOCK and SYSTEM INFORMATION BLOCK (see specific message contents).
1b	←		PAGING TYPE 1	Include IE "BCCH modification info"

1c	→	URA UPDATE	IE "URA update cause" shall be set to "periodical cell update".
1d	←	URA UPDATE CONFIRM	
2			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.2.3 such that the cell 1 is no longer suitable for camping i.e. S<0.
3			The UE shall detect a "out of service area" condition, start T316. The UE shall start T317 on expiry of T316)~~The UE shall attempt to perform a URA update upon the expiry of timer T305. It shall discover that it is out of service and starts searching for cell to camp.(T307 timer starts)~~
4			60 seconds after step 2 (see note 1), the SS configures its downlink transmission power settings according to columns "T0" in table 8.3.2.3 before T307 expires.
5	→	CELL~~URA~~ UPDATE	Value "re-entering service area~~periodical URA update~~" shall be set in IE "Cell~~URA~~ update cause"
6	←	CELL~~URA~~ UPDATE CONFIRM	~~The message includes IEs "new C-RNTI" , and "new U-RNTI"~~
~~7~~	~~→~~	~~UTRAN MOBILITY INFORMATION CONFIRM~~	

Note 1: The 60 seconds in step 4 should be large enough for any UE to have detected the out of service area condition (Nserv consecutive DRX cycles + 12s) and have started T317 after T316 expiry (default=30s), but well before T317 expiry (default = 180s).

Specific Message Contents

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
MIB Tag	2
Scheduling information	- Scheduling info for System Information Type 3
- Cell Value tag	2
Scheduling information	- Scheduling info for System Information Type 4
- Cell Value tag	2

SYSTEM INFORMATION BLOCK TYPE 3 and 4 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	Value/remark
Qrxlevmin	-70

PAGING TYPE 1 (Step 1b)

Use the same message sub-type found in ~~Annex A~~Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
Paging record list	Not Present
BCCH modification info	
MIB Value tag	2
BCCH modification time	Not present

URA UPDATE (Step 1c)

The same message found in Clause 9 of TS 34.108 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 'periodical URA update'

URA UPDATE CONFIRM (Step 1d)

Use the same message sub-type found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
URA identity	URA-ID 1

CELL~~URA~~ UPDATE (Step 5)

The same message found in ~~Annex A~~Clause 9 of TS 34.108 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'
Cell~~URA~~ Update Cause	Check to see if set to 're-entering service area~~periodical URA update~~'

CELL~~URA~~ UPDATE CONFIRM (Step 6)

Use the same message sub-type found in ~~Annex A~~Clause 9 of TS 34.108.~~, with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~New U-RNTI~~	
~~- SRNC Identity~~	~~'0000 0000 0001'~~
~~- S-RNTI~~	~~'0000 0000 0000 1111 1111'~~
~~New C-RNTI~~	~~Arbitrary 16-bit string which is different the assigned C-RNTI in RRC CONNECTION SETUP message.~~

8.3.2.3.5 Test requirement

After step 2 the UE shall detect that it is out of service area and shall not send a URA UPDATE on the uplink CCCH channel.

After step 4 the UE shall transmit a CELL~~URA~~ UPDATE message which sets value "re-entering service area~~periodical URA update~~ " into IE "Cell~~URA~~ update cause".

~~After step 6 the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH.~~

8.3.2.4 URA Update: loss of service after expiry of timers T307 and T305

8.3.2.4.1 Definition

8.3.2.4.2 Conformance requirement

When the T305 expires and the UE detects that it is "out of service area" as specified in TS 25.331 subclause 8.5.5.1, the UE shall

1> start timer T307;

…

When the T307 expires, the UE shall:

1> move to idle mode;

1> release all dedicated resources;

1> indicate release (abort) 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;

1> clear the variable ESTABLISHED_SIGNALLING_CONNECTIONS;

1> clear the variable ESTABLISHED_RABS;

1> perform other actions when entering idle mode from connected mode as specified in TS 25.331 subclause 8.5.2;

1> and the procedure ends.

~~This procedure is required to handle the case when the UE fails to update UTRAN with the current URA of after expiry of timers T307 and T305 consecutively. The UE shall move to idle mode subsequently.~~

Reference

3GPP TS 25.331 clause 8.3.1.4

8.3.2.4.3 Test purpose

1. To confirm that the UE moves to idle mode after the expiry of timer T307, following an expiry of timer T305 when it discovers that it is out of service area.

8.3.2.4.4 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~~.~~ ., with URA-ID 1 in the list of URA-ID.

Test Procedure

Table 8.3.2.4

Parameter	**Unit**	**Cell 1**	
		T0	T1
UTRA RF Channel Number		Ch. 1	
CPICH Ec	dBm/3.84MHz	-60	-80
P-CCPCH RSCP (TDD)	dBm	-60	-80

Table 8.3.2.4 illustrates the downlink power to be applied at various time instants of the test execution. Columns marked "T0" denote the initial conditions.

The UE is in URA_PCH state. The content of the SYSTEM INFORMATION BLOCK TYPE 3 and 4 is modified. The SS waits for reception of a periodical URA update in order to know the timing of the T305 in the UE. SS configures its downlink transmission power settings according to columns "T1" in table 8.3.2.3 so that S<0. When the UE detects the expiry of periodic URA updating timer T305 according to the system information, the UE detects that it is out of service area. After the expiry of timer T307, the UE moves to the idle state. SS configures its downlink transmission power settings according to columns "T0" in table 8.3.2.3 so that S>0. SS waits for 5s and then calls for generic procedure C.1 to check that UE is in idle mode state. ~~SS verifies that UE is in idle mode state by sending a PAGING TYPE 1 message to the UE using UE identity. UE shall respond with a RRC CONNECTION REQUEST message.~~

Expected sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1				Initially, the UE is in the URA_PCH state.
1a	←		MASTER INFORMATION BLOCK SYSTEM INFORMATION BLOCK TYPE 3 and 4	SS changes the contents of MASTER INFORMATION BLOCK and SYSTEM INFORMATION BLOCK (see specific message contents).
1b	←		PAGING TYPE 1	Include IE "BCCH modification info"
1c	→		URA UPDATE	IE "URA update cause" shall be set to "periodical cell update".
1d	←		URA UPDATE CONFIRM	

2a			SS configures its downlink transmission power settings according to columns "T1" in table 8.3.2.4 so that the UE detects that it is out of service area.
2b			SS waits (T305+T307) +10% for UE to enter idle mode.
3			Upon the expiry of timer T305, the UE shall search for cell to camp and triggers T307 timer. SS listens to the uplink CCCH to verify that URA UPDATE message is not transmitted.
4			After the expiry of timer T307, the UE enters idle state. SS waits for 5s.
~~5~~	~~←~~	~~PAGING TYPE 1~~	~~SS pages the UE at its assigned paging occasion using the allocated UE identity.~~
~~6~~	~~→~~	~~RRC CONNECTION REQUEST~~	~~The UE shall respond to this page as it has already entered the idle mode.~~
5	←→	CALL C.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

MASTER INFORMATION BLOCK (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

~~**Information Element**~~	~~**Value/remark**~~
MIB Tag	2
Scheduling information	- Scheduling info for System Information Type 1
- PLMN Value tag	2
Scheduling information	- Scheduling info for System Information Type 3
- Cell Value tag	2
Scheduling information	- Scheduling info for System Information Type 4
- Cell Value tag	2

SYSTEM INFORMATION BLOCK TYPE 1 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	**Value/remark**
- T305	5 minutes
- T317	1800 seconds

SYSTEM INFORMATION BLOCK TYPE 3 and 4 (Step 1a)

Use the same message sub-type found in clause 6.1 of TS 34.108, with the following exception.

Information Element	**Value/remark**
Qrxlevmin	-70

PAGING TYPE 1 (Step 1b)

Use the same message sub-type found in ~~Annex A~~34.108 clause 9 , with the following exceptions:

Information Element	Value/remark
Paging record list	Not Present
BCCH modification info	
MIB Value tag	2
BCCH modification time	Not present

URA UPDATE (Step 1c)

The same message found in Clause 9 of TS 34.108 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 “periodical URA update”

URA UPDATE CONFIRM (Step 1d)

Use the same message sub-type found in Clause 9 of TS 34.108, with the following exceptions:

Information Element	Value/remark
URA identity	URA-ID 1

8.3.2.4.5 Test requirement

After step 2 the UE shall not transmit any URA UPDATE message on the uplink CCCH.

~~After step 5, the UE shall transmit a RRC CONNECTION REQUEST message to respond to the PAGING TYPE 1 message.~~

8.3.2.7 URA Update: Success after T302 timeout

8.3.2.7.1 Definition

8.3.2.7.2 Conformance requirement

If any or several of the following conditions are true:

- expiry of timer T302;

…

the UE shall:

1> stop T302 if it is running;

1> check whether it is still in "in service area";

1> in case of a URA update procedure:

2> clear any entry for the URA UPDATE CONFIRM message in the table "Accepted transactions" in the variable TRANSACTIONS.

If the UE detects "in service area" if it has not entered idle mode, and:

1> if V302 is equal to or smaller than N302, the UE shall:

  2> in case of a URA update procedure:

    3> set the contents of the URA UPDATE message according to TS 25.331 subclause 8.3.1.3;

    3> 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, the UE shall:

  …

~~The UE transmits an URA UPDATE message to the UTRAN when it needs to update UTRAN with the current URA identity stored the UE. When the UE fails to receive any URA UPDATE CONFIRM message after T302 timer expires, it transmits a URA UPDATE message repeatedly at an interval of T302 timer value until its internal counter V302 is greater than N302.~~

Reference

3GPP TS 25.331 clause 8.3.1.12

8.3.2.7.3 Test purpose

1. To confirm that the UE attempts to repeat the URA update procedure upon the expiry of timer T302.

8.3.2.7.4 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

The UE is in URA_PCH. 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, setting value "periodic URA update" into IE "URA update cause". The SS ignores this message. The UE shall then retry to transmit a URA UPDATE message after the expiry of timer T302, until a total of N302+1 URA UPDATE messages have been received by the SS. SS transmits a URA UPDATE CONFIRM message to the UE to end the procedure.

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1				The UE is in URA_PCH state at the beginning of test. SS initializes counter K to 0 SS waits for T305 to expire.
2	→		URA UPDATE	This message shall contain value "periodic URA update" in IE "URA update cause" sent upon the expiry of timer T305.
3				SS shall not reply. Increment K by 1.
4	→		URA UPDATE	This message shall contain value "periodic URA update" in IE "URA update cause" sent upon the expiry of timer T302.
5				SS shall not reply. SS increments K by 1. If K is not greater than N302, proceed to step 4. If K is greater than N302, SS proceeds to step 6.
6	←		URA UPDATE CONFIRM	
7	→		UTRAN MOBILITY INFORMATION CONFIRM	

Specific Message Contents

URA UPDATE CONFIRM (Step ~~5~~6)

Use the same message sub-type as in ~~Annex A~~TS34.108 clause 9, with the following exceptions:

Information Element	**Value/remark**
New U-RNTI	
SRNC identity	0000 0000 0001 B
S-RNTI	0000 0000 0000 1111 1111 B
Integrity protection mode info	
Integrity protection mode command	start
Integrity protection initialisation number	any 32 bit value different from the current FRESH
Downlink counter synchronisation info	This IE is present but empty

8.3.2.7.5 Test requirement

After step 1 the UE shall detect the expiry of timer T305, then it shall move to CELL_FACH state and transmit a URA UPDATE message on the uplink CCCH. The updating cause shall be set to "periodic URA update" in IE "URA update cause".

After step 3 the UE shall retry to transmit a URA UPDATE message at the expiry of timer T302~~.~~, until a total of N302~~+1~~ URA UPDATE messages have been received by the SS.

After step 6, the UE shall transmit an UTRAN MOBILITY INFORMATION CONFIRM message on the uplink DCCH integrity protected using the new FRESH value.

3GPP TSG- T1 Meeting #16 **T1-020558**
Yokohama, Japan, 2nd Aug 2002

3GPP TSG–T1/SIG Meeting #24 **Tdoc T1S-020539**
Yokohama, Japan, 29th- 31st July 2002

CR-Form-v4

CHANGE REQUEST

⌘	**34.123-1**	**CR**	**297**	⌘	ev	**-**	⌘ Current version:	5.0.1 ⌘

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

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Corrections to package 2 TCs in clause 8.4 of TS 34.123-1 (T1S-020495rev1)		
Source:	⌘	Panasonic, Ericsson		
Work item code:	⌘	TEI	***Date:*** ⌘	1/08/2002
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)*

Reason for change: ⌘

From T1S 020381

1. Update Conformance Requirement according to core specification 25.331.
2. Editorial changes.
3. Add generic procedure at the end of some test cases to verify the final state of the UE.
4. Add specific procedures, either before or after the actual testing, to verify that the UE continues with any ongoing processes and procedures as if the erroneous message has not been received.
5. After the modification of system information, the SS should send PAGING TYPE 1 or SYSTEM INFORMATION CHANGE INDICATION message to notify the UE.
6. It is more stable to perform measurement test cases when RABs are established in either CELL FACH or CELL DCH state, therefore the initial conditions of some of the test cases have to be revised or in some cases RABs are proposed to be set up before the measurement takes place.
7. In some test, RABs are established when UE is in CELL FACH, such test cases are not applicable to CS only UE.
8. ICS/IXIT statement is applied to Inter frequency measurement test cases.

Corrections to T1S-020359

9. Editorial corrections.
10. In clause 8.4.1.7, as UE moves to cell 2, it reads the system information and therefore, the UE shall send measurement report for intra-frequency measurement as UE moves into CELL DCH in step 25.
11. In clause 8.4.1.14, the description of the test in the test procedure

mismatches the expected sequence.

12. In clause 8.4.1.18, if the measurement validity of the traffice volume measurement is not present in step 33, the UE shall not perform any traffic volume measurement after it transit to CELL_DCH in step 35.

From T1S 020406

The tests as they are defined now do not allow for proper testing of the functionality that they aim at testing. Some tests do not follow the core specification.

From **T1S 020495**

1. In Specific Message Content of TC 8.4.1.8,
    - the value of IE "TGPS Status Flag" is changed from "Active" to "Activate" or "Inactive" to "Deactivate".
    - the IE "Downlink compressed mode method" and "Uplink compressed mode method" in PHYSICAL CHANNEL RECONFIGURATION are changed to "SF/2 (or not sent, depending on the UE capability)".

2. In Specific Message Content of TC 8.4.1.2 RRC CONNECTION SETUP (Step 2),
    - the IE "Scrambling code change" is set to "No code change" to align with core spec.
    - IEs are mis-aligned with their values

3. In TC 8.4.1.23, the IEs of Specific Message Content of ACTIVE SET UPDATE (Step 9) are mis-aligned.

Summary of change: ⌘

From T1S 020381

In clause 8.4.1.2
- Conformance requirement and Test Purpose are updated.
- In step 4, SS should execute procedure P11 (clause 7.4.2.5.2) or P13 (clause 7.4.2.6.2) specified in TS 34.108, and not P3 (clause 7.4.2.1.2) or P5 (clause 7.4.2.2.2)
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.
- ICS/IXIT statement is added and accordingly the test procedure and message contents are revised.

In clause 8.4.1.7
- After SIB 12 is modified, SS should send SYSTEM INFORMATION CHANGE INDICATION to UE.

In clause 8.4.1.8
- Conformance requirement and Test Purpose are updated.
- The Initial Condition of UE is PS-DCCH+DTCH_DCH (state 6-10). This test is not applicable to CS-DCCH+DTCH_DCH (state 6-9).
- ICS/IXIT statement is added and accordingly the test procedure and message contents are revised.

In clause 8.4.1.14

- Conformance requirement and Test Purpose are updated.
- The test method are revised to meet the test purpose.

In clause 8.4.1.16

- Conformance requirement and Test Purpose are updated.
- Reference is added.
- The Initial Condition of UE can only be "Registered idle mode in PS". This test case is not applicable to "Registered idle mode in CS".
- After step 1, SS should executes procedure P6, P10 and P14.
- SS called generic procedure C.2 to check that UE is in CELL_FACH at the end of test.

In clause 8.4.1.17

- Conformance requirement and Test Purpose are updated.
- Reference is added.
- After step 1, SS should executes procedure P3, P7 and P11 (for CS), or P5, P9 and P13 (for PS).
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

In clause 8.4.1.18

- Test Purpose is updated.
- In step 33, MIB with a different tag value should be broadcasted.
- After SIB 11 is modified, SS should send SYSTEM INFORMATION CHANGE INDICATION to UE.

In clause 8.4.1.19

- Test Purpose is updated.

In clause 8.4.1.23

- The Initial Condition of UE should be "CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10)".
- SS called generic procedure C.3 to check that UE is in CELL_DCH at the end of test.

The modification is added in T1S-020359 as below with blue marker.

In clause 8.4.1.2, 8.4.1.8

- Related ICS/IXIT statement : Compressed mode Supported → required
- To add an extra blank line on the left hand size when proposed change on right on size takes more than one line in specific message contents.
- It is replaced from "if flag X0 is set to TRUE" to "If UE requires compressed mode" and from "if flag X0 is set to FALSE" to "If UE do not require compressed mode".

The modification is added in T1S-020359 as below with yellow marker.

In clause 8.4.1.7

- The direction of the arrows in step 24 and 25 is reversed.
- Step 26 is revised so that MEASUREMENT REPORT message is expected.

In clause 8.4.1.18

- The measurement validity of traffic volume measurement in step 33 is changed to "all states".

In clause 8.4.1.14

- The test procedure is revised to match the expected sequence.

From T1S 020406

Test case 8.4.1.2:

1. 8.4.1.2.3: It is made clear that this test case only applies if the UE requires compressed mode to perform inter-frequency measurements.
2. 8.4.1.2.4: Under table 8.4.1.2-1, the sentence related to system information block type 11 is removed since the sentence is not accurate, and the exact content of SIB11 is given in the specific message content part anyway.
3. 8.4.1.2.4, specific message content: the IE missing to the content of SIB11 are added, and the serving cell is included in the intra-frequency cell info list part, as should be.
4. 8.4.1.2.4, specific message content, step 2: depending on the UE capability, compressed mode could be needed on the uplink, on the downlink or on both, so it is made clear that the value of the CHOICE UL/DL mode depends on the UE capability. Then, since the compressed mode method used is SF/2, the IE Scrambling code change shall also be sent to the UE for it to know whether the alternative scrambling code shall be used or not for the compressed frames. That is different from the default message, in which that IE is not sent.
5. 8.4.1.2.4, specific message content, step 7: the IEs given related to PHYSICAL CHANNEL RECONFIGURATION that are the same as in the default message are removed, to keep only the ones that are different.
6. 8.4.1.2.4, specific message content, step 9: the IE Cells for measurement is not needed in this situation, since there is only 1 inter-frequency cell in the CELL_INFO_LIST variable of the UE. It is also proposed to remove the reference time difference to cell, not to give the UE a hint about the relative synchronisation of the inter-frequency cell.
7. 8.4.1.2.4, specific message content, step 11: the Measurement Command is set to Set up instead of Modify since there is really nothing common between the measurement previously stored with that identity and the one that is configured through that message. The IE Cells for measurement is not needed in this situation, since there is only 1 inter-frequency cell in the CELL_INFO_LIST variable of the UE. It is also proposed to remove the reference time difference to cell, not to give the UE a hint about the relative synchronisation of the inter-frequency cell. The group of IEs Inter-frequency set update shall also be sent to the UE when configuring an event triggered inter-frequency measurement.
8. In Specific Message Content of RRC CONNECTION SETUP (Step 2), IEs are adjusted to be aligned with their values.
9. In Specific Message Content of RRC CONNECTION SETUP (Step 2), IE "Scrambling code change" is set to "No code change" to align with core spec.

Test case 8.4.1.7:

1. 8.4.1.7.4: Under table 8.4.1.7-1, the sentence related to system information block type 11 is removed since the sentence is not accurate, and the exact content of SIB12 is given in the specific message content part anyway.
2. 8.4.1.7.4: The sequence is reshuffled to allow for a proper testing of the UE behaviour when it comes to the IE Measurement validity:
    - A MEASUREMENT CONTROL message is sent in step 5 in which the IE measurement validity is not present. It is checked then through steps 7-9c that when going from CELL_DCH to CELL_FACH (steps 7,8) and then to

CELL_DCH again (steps 9a, 9b), the UE will run the intra-frequency measurement broadcast in SIB12, and have released the one configured through the MEASUREMENT CONTROL message in step 5.

- A MEASUREMENT CONTROL message is sent in step 10 in the the IE measurement validity is set to CELL_DCH. The UE is in CELL_FACH at that point. When moving to CELL_DCH, through steps 12 and 13, the UE shall begin to apply that measurement, and not the one broadcast in SIB12. If then the UE moves to CELL_FACH once again (steps 14a, 14b), and back to CELL_DCH again (steps 14d, 14e), the measurement set up in step 10 shall be retrieved, and resumed. The measurement broadcast in SIB12 shall not be applied.
- The cell is brought to CELL_FACH once again (steps 18, 19) , and then forced to reselect to another cell. When moving to CELL_DCH once again (steps 24, 25), the UE shall have removed the measurement set up in step 10, and apply what is defined in SIB11 and 12 for the reselected cell.
- Steps 21 is changed, and step 22 removed since there does not seem to be any motivation for having those steps.

3. 8.4.1.7.4: In the expected sequence description, and in the test procedure part, all reference to the time 16 seconds have been removed, since that seemed to come from the value of the “Reporting interval” IE which is not applicable for event 1e.
4. 8.4.1.7.4, specific message content, SIB11 for cell 1 (step 1): SIB 11 for cell 1 needs also to be different from the default SIB 11, since no measurements applicable for CELL_DCH shall be configured in SIB11. So the content of SIB 11 also needs to be given here.
5. 8.4.1.7.4, specific message content, SIB12 for cell 1 (step 1): some IEs were missing, and the Amount of reporting and Reporting Interval IEs are not needed for event 1e.
6. 8.4.1.7.4, specific message content, MEASUREMENT CONTROL (step 5): the measurement identity is changed to 11 to allow for the measurement configured through that message to be distinguished from the ones in SIB12. The Amount of reporting and Reporting Interval IEs are not needed for event 1e.
7. 8.4.1.7.4, specific message content, MEASUREMENT REPORT (step 6): that report shall correspond to the measurement set up in step 5, so the measurement identity is changed accordingly.
8. 8.4.1.7.4, specific message content, MEASUREMENT REPORT (step 6a): consequently to change 6, since the new measurement set up does not replace the ones that had been stored from system information, when cell 3 is added to the CELL_INFO_LIST variable of the UE, that cell will also trigger event 1e for measurement id 10, so an additionnal MEASUREMENT REPORT shall be received after step 5.
9. 8.4.1.7.4, specific message content, MEASUREMENT CONTROL (steps 10 and 17): the Amount of reporting and Reporting Interval IEs are not needed for event 1e.
10. 8.4.1.7.4, specific message content, SIB11 for cell 2 (step 21): the settings for SIB11 in cell 2 shall be different from the default ones, so that needs to be mentioned here.
11. 8.4.1.7.5: requirements corresponding to the added steps are added.

Test case 8.4.1.8:

1. 8.4.1.8.3: the test is only applicable to UEs that need compressed mode for inter-frequency measurements to be performed. This is clarified here.

2. 8.4.1.8.4: depending on the initial condition, not all steps in the test sequence can be applicable: in case the initial condition is CS-DCCH+DTCH_DCH, no transition to CELL_FACH can be performed, since it is not allowed to map RB with TM-RLC on common transport channels: steps 4 to 7 can only apply to the PS case. For that reason, the procedures that apply in the CS case and the PS case are described separately. In case the UE supports both CN domains, the test shall be run twice, once for each initial condition, since it is proposed to test different compressed mode method for the CS and the PS case (i.e. SF/2 and HLS respectively). Some steps (17-21) are also added so that the possibility of releasing a measurement and stopping compressed mode through a MEASUREMENT CONTROL message can be tested.

3. ~~8.4.1.8.4, expected sequence step 10 and Specific message content, MEASUREMENT REPORT (step 10): the statement: “when transiting from CELL_FACH to CELL_DCH, the UE shall stop monitoring the list of cells assigned in the IE “inter-frequency cell info” in system information block type 11 or 12 messages” has been misinterpreated, since when going to CELL_FACH, the UE shall update its CELL_INFO_LIST variable according to what is broadcast in SIB11 and 12, and if going back to CELL_DCH and having an inter-frequency measurement applicable in that state (validity CELL_DCH), the measurement shall be applied to the cells in the CELL_INFO_LIST variable that the UE has at that point in time, and not retrieve the list of cells that were stored in that variable when it was in CELL_DCH previously.~~

4. 8.4.1.8.4, Specific message content, MEASUREMENT CONTROL (step 2): the IE Cells for measurement is not needed since it points here at the only cell that the UE has been told to apply the measurement to. The group of IEs Inter-frequency set update shall also be sent to the UE when configuring an event triggered inter-frequency measurement.

5. 8.4.1.8.4, Specific message content, PHYSICAL CHANNEL RECONFIGURATION (step 8 for the PS case): it is proposed to use the values Infinity for IE TGPRC, since that is the most common value to use, and since using a finite value is already tested in 8.4.1.2.1. It is also proposed to test the use of HLS in the PS case, since that should also be the most common choice.

6. 8.4.1.8.4, Specific message content, PHYSICAL CHANNEL RECONFIGURATION (step 8 for the CS case): for the CS case, the whole message is specified, since most IEs in that message are not needed in that case, since the only goal of that message in the CS case is to configure and activate the compressed mode patterns. In the CS case, it is also proposed to test the use of the SF/2 method.

7. 8.4.1.8.4, Specific message content, MEASUREMENT REPORT (step 10): see bullet 3.

8. 8.4.1.8.4, specific message content, MEASUREMENT CONTROL, step 11: the Measurement Command is set to Set up instead of Modify since there is really nothing common between the measurement previously stored with that identity and the one that is configured through that message.

9. 8.4.1.8.4, specific message content, PHYSICAL CHANNEL RECONFIGURATION step 13: most IEs in the default message are not needed in that message since its only goal is to deactivate compressed mode. So the whole message is specified here.

10. In Specific Message Content of PHYSICAL CHANNEL RECONFIGURATION, the value of IE “TGPS Status Flag” is changed from ”Active” to ”Activate” or ”Inactive” to ”Deactivate”.

11. The IE “Downlink compressed mode method” and “Uplink compressed mode method” in PHYSICAL CHANNEL RECONFIGURATION (Step 18, 19 for the PS case) is changed to “SF/2 (or not sent, depending on the UE capability)”.

Test case 8.4.1.16:

1. 8.3.1.16.4, specific message content, SIB11: the group of IEs “Intra-frequency measurement system information” should be present, since the information related to the serving cell shall be broadcast in SIB11. Moreover, there is some missalignment in the IEs in the description of that message.

Test case 8.4.1.17:

1. 8.4.1.17.4, specific message content, SIB 11: the group of IEs “Intra-frequency measurement system information” should be present, since the information related to the serving cell shall be broadcast in SIB11. Moreover, there is some missalignment in the IEs in the description of that message.
2. 8.4.1.17.4, specific message content, MEASUREMENT CONTROL, step 7: the Measurement Command is set to Set up instead of Modify since there is really nothing common between the measurement previously stored with that identity and the one that is configured through that message.

Test case 8.4.1.18:

1. 8.4.1.18.4, expected sequence: after step 33, a notification message should be sent to the UE to inform it of the change in system info.
2. 8.4.1.17.4, specific message content, SIB 11: the group of IEs “Intra-frequency measurement system information” should be present, since the information related to the serving cell shall be broadcast in SIB11. Moreover, there is some missalignment in the IEs in the description of that message. The “Measurement validity” IE that was not present is also added and set to “All states”, to make sure that the UE really sends MEASUREMENT REPORT later when going to CELL_DCH, since the standard does not seem entirely clear when it comes to the behaviour the UE shall have when going to CELL_DCH in case the measurement validity was not specified.

Test case 8.4.1.19:

1. 8.4.1.19.2: Conformance requirements are updated to latest RRC specification
2. 8.4.1.19.4: Only some minor editorial changes.

Test case 8.4.1.23

1. 8.4.1.23.2: Conformance requirements are updated to latest RRC specification.
2. 8.4.1.23.4: ACTIVE SET UPDATE message (step 1/9):
    - DPCH frame offset is calculated
    - TFCI combining indicator is changed from “Not present” to “TRUE” since inclusin is mandatory.
3. 8.4.1.23.4: Other minor corrections
4. The IEs of Specific Message Content of ACTIVE SET UPDATE (Step 9) is adjusted to be aligned with their values.

The modification is added to T1S-020406

In clause 8.4.1.8

- In expected sequence(step 10) UE don’t report CPICH RSCP for cell 4, but cell 5.

Consequences if ⌘ If changes are not approved, UE might not be tested properly.

not approved:		

Clauses affected:	⌘	8.4.1.2, 8.4.1.7, 8.4.1.8, 8.4.1.14, 8.4.1.16, 8.4.1.17, 8.4.1.18, 8.4.1.19, 8.4.1.23			
Other specs affected:	⌘	☐	Other core specifications	⌘	
		☐	Test specifications		
		☐	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/3G_Specs/CRs.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.

8.4.1.2 Measurement Control and Report: Inter-frequency measurement for transition from idle mode to CELL_DCH state

8.4.1.2.1 Definition

8.4.1.2.2 Conformance requirement

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

1> stop monitoring the list of cells assigned in the IE "inter-frequency cell info list" in System Information Block type 12 (or System Information Block type 11).

Upon reception of a MEASUREMENT CONTROL message 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-frequency measurement":

3> if, according to its measurement capabilities, the UE requires compressed mode to perform that measurement type and a compressed mode pattern sequence with an appropriate measurement purpose is simultaneously activated by the IE "DPCH compressed mode status info"; or

3> if the IE "Inter-frequency cell info list" for that measurement identity is empty; or

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.

If the IE "Reporting Cell Status" is not received for inter-frequency measurement, the UE shall:

1> exclude the IE "Cell Measured Results" for any cell in MEASUREMENT REPORT.

~~After entering CELL_DCH state from idle mode, the UE shall stop monitoring the list of cells assigned in the IE "inter-frequency cell info" IE in System Information Block 11 or 12 messages. In CELL_DCH state, when the UE receives a MEASUREMENT CONTROL message requesting for a measurement of inter-frequency measurement type to be setup, it shall start inter-frequency measurement and the associated reporting activities if "DPCH compressed mode status info" IE in the message simultaneously activates at least one compressed mode pattern sequence. When the UE receives a MEASUREMENT CONTROL message with "Reporting cell status" IE omitted, it shall not include "Cell measured results" IE for any cells in MEASUREMENT REPORT messages sent on uplink DCCH.~~

Reference

3GPP TS 25.331 clauses 8.4.1.3, 8.4.1.8.2 and 8.6.7.9

8.4.1.2.3 Test Purpose

1. To confirm that the UE stops monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 11 messages, after it enters CELL_DCH state from idle mode.
2. To confirm that the UE starts to perform inter-frequency measurement and related reporting activities, when it receives a MEASUREMENT CONTROL message with the "DPCH compress mode status info" IE indicating that a stored compressed mode pattern sequence be simultaneously activated.

3. To confirm that the UE excludes the IE "cell measured results" for any cells in the MEASUREMENT REPORT messages, after it receives a MEASUREMENT CONTROL message with "Reporting cell status" IE omitted.

~~To confirm that the UE stops monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 11 messages, after it enters CELL_DCH state from idle mode. To confirm that the UE starts to perform inter-frequency measurement and related reporting activities, when it receives a MEASUREMENT CONTROL message with the "DPCH compress mode status info" IE indicating that a stored compressed mode pattern sequence be simultaneously activated. To confirm that the UE excludes the IE "cell measured results" for any cells in the MEASUREMENT REPORT messages, after it receives a MEASUREMENT CONTROL message with "Reporting cell status" IE omitted.~~

Note that this test case is only applicable in case the UE requires compressed mode to perform inter-frequency measurements.

8.4.1.2.4 Method of test

Initial Condition

System Simulator: 2 cells – Cell 1 and cell 4 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).

Related ICS/IXIT statements

- Compressed mode required yes/no

Test Procedure

Table 8.4.1.2-1 illustrates the downlink power to be applied for the 2 cells.

Table 8.4.1.2-1

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

The UE is initially ~~at~~ 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 4 into "inter-frequency cells info list" IE.~~

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 P3 (for CS service) or P5 (for PS service). The RRC CONNECTION SETUP message used in procedure P3 or P5 should contain IE "DPCH compressed mode info", activating the transmission pattern gap sequence with TGPSI=1 only if UE requires compressed mode. 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 not transmit any MEASUREMENT REPORT messages, which pertain to measurement readings for cells listed in the IE "inter-frequency cell info list" in System Information Block Type 11.

If UE requires compressed mode, SS sends PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH, specifying that compressed mode sequence pattern with TGPSI=1 be deactivated. The UE shall reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH if UE configures according to the PHYSICAL CHANNEL RECONFIGURATION message. ~~It shall stop compressed mode operations at the activation time stated in PHYSICAL CHANNEL RECONFIGURATION message.~~

~~After the activation time has elapsed,~~ SS sends MEASUREMENT CONTROL message on the downlink DCCH. In this message, SS requests UE to perform inter-frequency measurement with periodic reporting of CPICH RSCP values for cell 4. If UE requires compressed mode, ~~The~~ IE "DPCH compressed status info" IE ~~in this message~~ to activate~~s~~ the transmission gap pattern sequence with TGPSI = 1 is included in this message.

The UE shall start inter-frequency measurement and reporting for cell 4's CPICH RSCP values. It shall report this measurement result by transmitting MEASUREMENT REPORT messages on uplink DCCH periodically at 16 seconds interval.

SS sends MEASUREMENT CONTROL message on the downlink DCCH omitting the IE "Reporting cell status". The UE shall send MEASUREMENT REPORT messages on the uplink DCCH, with the IE "Cell measured results" excluded in these messages. 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 idle mode and camped onto cell 1.System Information Block Type 11 to be transmitted is 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.	SS prompts the operator to make an outgoing call.
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 ~~P3~~ P11 (clause 7.4.2.~~1~~5.2) or ~~P5~~ P13 (clause 7.4.2.~~2~~6.2) specified in TS 34.108.	
5			Void	
6				SS checks to see that no MEASUREMENT REPORT messages are received. If compresed mode is not required (refer ICS/IXIT), then goto step 9.
7	←		PHYSICAL CHANNEL RECONFIGURATION	Existing compressed mode sequence pattern is de-activated in this message~~.~~
8	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall remain in CELL_DCH state.
9	←		MEASUREMENT CONTROL	SS requests UE to start inter-frequency measurement for cell 4, and performing periodic reporting for cell 4's CPICH RSCP. "~~DPCH compressed mode status info" IE is set to simultaneously activate compressed mode pattern.~~See specific message content below.

10	→	MEASUREMENT REPORT	UE shall report cell 4's CPICH RSCP reading periodically.
11	←	MEASUREMENT CONTROL	SS changes the reporting criteria of cell 4 to 'event 2c'. "Reporting cell status" IE in this message is omitted.
12	→	MEASUREMENT REPORT	SS monitors the uplink DCCH to make sure that only 1 such message is received ~~32 seconds~~almost immediately after step 11. This message shall not contain IE "Inter-frequency cell measured results"
13	←→	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

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
-Cell selection and reselection quality measure	CPICH Ec/No
- Intra-frequency measurement system information	~~Not Present~~
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency Cell
- 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	Primary scrambling code of cell 1
- 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	
- Inter-frequency cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency cells~~info list~~	
- Inter-frequency cell id	4
- Frequency info	
- UARFCN uplink (Nu)	Set to the uplink UARFCN of cell 4
- UARFCN downlink (Nd)	Set to the downlink UARFCN of cell 4
- 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 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and re-selection info	
- Qoffset1$_{s,n}$	0 dB
- Qoffset2$_{s,n}$	Not present
- Maximum allowed UL TX power	0 dBm
- HCS neighbouring cell information	Not Present
- CHOICE Mode	FDD
- Qqualmin	-20 dB
- Qrxlevmin	-115dBm
-Cells for measurement	Not present
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present
- UE internal measurement system information	Not Present

RRC CONNECTION SETUP (Step 2)

If UE do not require compressed mode, ~~U~~use the message found in TS 34.108 clause 9.

If UE requires compressed mode, use the message found in TS 34.108 clause 9., with the following exceptions:

Information Element	Value/Remarks
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indication	~~Maintain~~Initialise
- CFN-targetSFN frame offset	Not Present
- Downlink DPCH power control information	
- DPC mode	Single TPC
- CHOICE Mode	FDD
- Power offset $P_{Pilot\text{-}DPDCH}$	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)	Refer to the parameter set in TS 34.108
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	~~Active~~Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	~~62~~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 or DL only depending the on UE capability ~~UL and DL~~
- Downlink compressed mode method	SF/2 (or Not present depending on the UE capability)
- Uplink compressed mode method	SF/2 or Not present depending on the UE capability
- Downlink frame type	B
- DeltaSIR1	2.0
- DeltaSIRAfter1	1.0
- DeltaSIR2	Not Present
- DeltaSIR2After2	Not Present
- N identify abort	Not Present
- T Reconfirm abort	Not Present
- TX Diversity Mode	None
- SSDT information	Not Present
- Default DPCH Offset Value	0
Downlink information for each radio link list	
- Downlink information for each radio link	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Reference to 34.108
- 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 can be used
- DPCH frame offset	Set to value: Default DPCH Offset value mod 38400
- Secondary CPICH info	Not Present
- DL Channelisation code	
- Secondary scrambling code	1
- Spreading factor	Reference to 34.108

- Code number	0
- Scrambling code change	No code change
- TPC combination index	0
- SSDT Cell identity	Not present
- Closed loop timing adjustment mode	Not present
SCCPCH information for FACH	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 7)

Use the same message sub-type in Annex A titled “Non speech in CS” or "Speech in CS" or “Packet to CELL_DCH from CELL_DCH in PS” , with the following exceptions:

Information Element	Value/remark
~~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~~
~~- Scrambling code type~~	~~Long~~
~~- Scrambling code number~~	~~0~~
~~- Number of DPDCH~~	~~Reference to TS34.108 clause 6.10 Parameter SetNot Present (Use default value of 1)~~
~~- Spreading factor~~	~~SF is reference to TS34.108 clause 6.10 Parameter Set~~
~~- TFCI existence~~	~~Reference to TS34.108 clause 6.10 Parameter SetTRUE~~
~~- Number of FBI bit~~	~~SF is rReference to TS34.108 clause 6.10 Parameter SetNot Present (Use default value of 0)~~
~~- Puncturing Limit~~	~~Reference to TS34.108 clause 6.10 Parameter Set~~
~~CHOICE Mode~~	~~FDD~~
~~- Downlink PDSCH information~~	~~Not Present~~
Downlink information common for all radio links	
- Downlink DPCH info common for all RL	
- Timing Indication	Maintain
- Downlink DPCH power control information	
- DPC mode	0 (single)
- CHOICE mode	FDD
- Power offset $P_{Pilot-DPDCH}$	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~~Flexible~~
- TFCI existence	~~TRUE~~ Reference to TS34.108 clause 6.10 Parameter Set
- Number of bits for Pilot bits (SF=128,256)	Reference to TS34.108 clause 6.10 Parameter Set~~Not Present~~
- DPCH compressed mode info	
- Transmission gap pattern sequence	
- TGPSI	1
- TPGS status Flag	~~Inactive~~deactivate
- TGCFN	Not Present
- Transmission gap pattern sequence configuration parameters	Not Present
- TX Diversity mode	None
- SSDT information	Not Present
- Default DPCH Offset Value	0
Downlink information per radio link list	Not Present

MEASUREMENT CONTROL (Step 9)

If UE requires compressed mode,

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodical Reporting / Event Trigger Reporting Mode	~~Event Trigger~~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	~~0 chips~~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	Not Present
~~- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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 cell 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
- Inter-frequency set update	Not present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds
DPCH compressed mode status info	
TGPS reconfiguration CFN	(Current CFN + (256 – TTI/10msec))mod 256
Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	~~Active~~Activate
- TGCFN	(Current CFN + (256 – TTI/10msec))mod 256

If UE do not require compressed mode,

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	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	0 chips
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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 cell 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
- Inter-frequency set update	Not present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	16 seconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 10)

Information Element	Value/Remarks
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 (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
- SFN-SFN observed time difference	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
Additional Measured results	Check to see if it is absent
Event Results	Check to see if it is absent

MEASUREMENT CONTROL (Step 11)

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	~~Modify~~Set up
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 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	~~0 chips~~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	Not Present
~~- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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	Not Present
- Measurement validity	Not present
- Inter-frequency set update	~~Not present~~
-UE Autonomous update mode	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	2c
- Threshold used frequency	Not Present
- W used frequency	Not Present
- Hysteresis	0.5 dB
- Time to trigger	0 milliseconds
- Reporting cell status	Not Present
- Parameters required for each non-used frequency	
- Threshold non used frequency	-85 dBm
- W non used frequency	0
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 12)

Information Element	Value/Remarks
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 (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	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 "Intra-frequency measurement event results"
- Inter-frequency event identity	Check to see if this IE is set to "2c"
- Inter-frequency cells	
- 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
- Non frequency related 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 as cell 4

8.4.1.2.5 Test Requirement

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

If UE requires compressed mode, after step 7, UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on uplink DCCH using AM RLC.

After step 9 the UE shall transmit MEASUREMENT REPORT messages on uplink DCCH, reporting cell 4's CPICH RSCP value at periodic time interval of 16 seconds in "inter-frequency cell measurement results" IE.

After step 11 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.

8.4.1.7 Measurement Control and Report: Intra-frequency measurement for transition from CELL_FACH to CELL_DCH state

8.4.1.7.1 Definition

8.4.1.7.2 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.

…

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.

…

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":

  …

  2> for measurement type "UE positioning measurement":

  …

  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:

      …

      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:

    …

  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

8.4.1.7.3 Test Purpose

- To confirm that UE retrieves stored measurement control information for intra-frequency measurement 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.

8.4.1.7.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, cell 2 and cell 3 are active.

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	T0	T1	T0	T1
UTRA RF Channel Number		Ch. 1		Ch. 1		Ch. 1	
CPICH Ec	dBm /3.84 MHz	-60	-122	-70	-60	-75	-75

The UE is brought to CELL_FACH state in cell 1. (step1)~~System Information Block type 12 message is changed with respect to the default message contents, with cell 2 included in the IE "intra-frequency cell info". Event 1e is selected in IE "Reporting information for state CELL_DCH", and "Intra-frequency measurement quantity" is set to CPICH RSCP.~~ 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(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~~s~~ 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~~s~~, SS transmits a MEASUREMENT CONTROL message with only cell 3 included in the IE "intra-frequency cell info"(step 5)~~ and IE "CHOICE reporting criteria" set to "periodic reporting"~~. After receiving such a message, the UE shall transmit another set of MEASUREMENT REPORT message~~s~~ for measurement 11. SS verifies that only measurement readings for cell 3 's CPICH RSCP are report in IE "cell measured results" in these message~~s~~(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 10 too (step 6a). The order of steps 6 and 6a is not important and could be reversed.

Next, SS sends 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(step 8). SS waits ~~for 16 seconds~~ 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 (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 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 a PHYSICAL CHANNEL RECONFIGURATION message to the UE to move it to CELL_FACH once again (step 9d). The UE shalll move to that state and transmit a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message to SS (step 9e). SS transmits MEASUREMENT CONTROL message on the downlink DCCH, to configure intra-frequency measurements with validity CELL_DCH (step 10). ~~The key parameters specified in this message are: measurement command = 'setup', measurement type = 'intra-frequency measurement', measurement object = 'cell 2', reporting criteria = 'periodic reporting', measurement validity IE is present and "UE state" = "CELL_DCH".~~ SS waits~~ for 16 seconds~~,and verifies that no MEASUREMENT REPORT messages are detected on the uplink DCCH(step 11).

SS sends RADIO BEARER RECONFIGURATION message and configures dedicated physical channels(step12). The UE shall return to CELL_DCH state, transmit a RADIO BEARER RECONFIGURATION COMPLETE message (step 13)~~and start to monitor cell 2~~. The UE shall also ~~resume periodic reporting of cell 2's CPICH RSCP measured results by~~ send~~ing~~ a MEASUREMENT REPORT message~~s~~ 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 (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 (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).

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(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 ~~5~~ 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 contents of Master Information Block and System Information Block type 12 messages, and then send SYSTEM INFORMATION CHANGE INDICATION message to UE. This is followed by a reconfiguration of~~ 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 11for cell 2 shall be different from the default setting according to what is defined in the specific message content part of this section (step 21).~~SS starts timer T305 and then waits for it to expire.~~ The UE shall ~~discover an "out-of-service" condition and~~ 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 checks that the UE does not generate any MEASUREMENT REPORT messages on the uplink DCCH.~~UE shall then send MEASUREMENT REPORT messages reporting cell 1 and 3’s CPICH RSCP according ot the content in System Information Block type 12 messages broadcast in cell 2 (step 26).

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		System Information Block type 12	UE is initially in PS-DCCH+DTCH_FACH (state 6-11) in cell 1. System Information Block type 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.
5	←		MEASUREMENT CONTROL	~~Only c~~Cell 3 is ~~included in the IE "intra-frequency cell info".~~ added to the list of monitored set of the UE.
6	→		MEASUREMENT REPORT	~~UE shall report cell 3's CPICH RSCP reading in IE "cell measured results".~~ 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 ~~for 16 seconds~~ 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
9d	←		PHYSICAL CHANNEL RECONFIGURATION	SS configures PRACH and S-CCPCH physical channels
9e	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	UE shall move to CELL_FACH state
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				SS waits ~~for 16 seconds~~ and verifies that no MEASUREMENT REPORT messages are sent by UE.
12	←		RADIO BEARER RECONFIGURATION	SS configures dedicated physical channels.
13	→		RADIO BEARER RECONFIGURATION COMPLETE	UE shall return to CELL_DCH state.

Step	Direction		Message	Comment
	UE	SS		
14	→		MEASUREMENT REPORT	UE ~~begins to~~ reports cell 2's measured results for CPICH RSCP.
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.
15	←		MEASUREMENT CONTROL	Terminate all the intra-frequency measurement and reporting activitiest related to "measurement identity" = 12.
16				SS waits ~~for 16 seconds~~ and verifies that UE stop transmitting MEASUREMENT REPORT messages.
17	←		MEASUREMENT CONTROL	This message is the same as in step ~~5~~10
17a	→		MEASUREMENT REPORT	UE shall transmit a MEASUREMENT REPORT message triggered by cell 2.
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.
21	~~←~~		~~Master Information Block~~ ~~System Information Block type 12~~	~~System Information Block type 12 messages are modified to include cell 2 and cell 3 into neighbouring cells list for intra-frequency type measurements.~~ SS reconfigures the downlink transmission power settings for cells 1 to 3 according to column “T1” in table 8.4.1.7.
~~21a~~	~~←~~		~~SYSTEM INFORMATION CHANGE INDICATION~~	~~SS reconfigures the downlink transmission power settings for cell 1 to cell 3 according to columns "T1" in table 8.4.1.7-1, runs timer T305, and then waits until T305 expires.~~
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.

Step	Direction		Message	Comment
	UE	SS		
25	→~~←~~		RADIO BEARER RECONFIGURATION COMPLETE	UE shall return to CELL_DCH state.
26	→		MEASUREMENT REPORT	UE begins to report cell 1 and 3's measured results for CPICH RSCP.~~SS checks that no MEASUREMENT REPORT messages are received on uplink DCCH.~~

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
- 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	Remove no intra-frequency cell
- 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	Primary scrambling code of cell 1
- 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
- UE internal 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	Remove no intra-frequency cells
- New intra-frequency cells~~info list~~	
- 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
- Cell selection and Re-selection info	Not Present
- Cells for measurement	Not Present
- Intra-frequency measurement quantity	0
- Filter Coefficient	CPICH RSCP
- Measurement quantity	Not Present
- Intra-frequency measurement for RACH reporting	No report
- Maximum number of reported cells on RACH	
- Reporting information for state CELL_DCH	
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	No report
- SFN-SFN observed time difference reporting indicator	FALSE
- 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	
- Reporting quantities for monitored set cells	No report
- SFN-SFN observed time difference reporting indicator	FALSE
- Cell synchronisation information reporting indicator	TRUE
- Cell identity reporting indicator	FALSE
- CPICH Ec/No reporting indicator	TRUE
- CPICH RSCP reporting indicator	FALSE
- Pathloss reporting indicator	Not present
- Reporting quantities for detected cells	Intra-frequency measurement reporting criteria
- CHOICE report criteria	
- Parameter required for each event	1e
- Intra-frequency event identity	Not Present
- Triggering condition 1	Monitored set cells
- Triggering condition 2	Not present
- Reporting range	Not present
- Cells forbidden to affect reporting	FDD
- CHOICE Mode	
- Primary CPICH Info	
- Primary scrambling code	Set to the scrambling code of cell 2
- 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

Information Element	Value/Remark
- Amount of reporting	~~Infinity~~ Not present
- Reporting Interval	~~16 seconds~~ 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
- UE internal 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

SYSTEM INFORMATION CHANGE INDICATION (Step 21a)

Information Element	**Value/Remarks**
BCCH modification info	
- MIB Value Tag	2
- BCCH modification time	Not Present

RADIO BEARER RECONFIGURATION (Step 2, Step 9a ,Step 12,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/Remarks
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
- SFN-SFN observed time difference	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~~ and Step 17~~)

Information Element	Value/Remark
Measurement Identity	~~10~~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	0 chips
- 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	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- 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 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

Information Element	Value/Remark
- Amount of reporting	~~Infinity~~ Not present
- Reporting interval	~~16 seconds~~ 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 6)

Information Element	Value/Remarks
Measurement identity	Check to see if set to ~~10~~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
- SFN-SFN observed time difference	Check to see if this IE is absent
- Cell synchronisation information	
- Primary CPICH Info	Check to see if it's the same code for cell 3
- Primary Scrambling Code	Check to see if this IE is absent
- 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
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 '1e'
- Intra-frequency event identity	
- Cell measurement event results	Check to see if it's the same code for cell 3
- Primary CPICH info	
- Primary scrambling code	

MEASUREMENT REPORT (Step 6a)

Information Element	Value/Remarks
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
- SFN-SFN observed time difference	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	Check to see if it's set to 'Intra-frequency measurement event results'
- CHOICE event result	Check to see if this IE is set to '1e'
- Intra-frequency event identity	
- 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 7,9d,14a and 18)

Use the same message sub-type found in Annex A, 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	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
- Cell selection and Re-selection info	Not Present
- Cells for measurement	Not Present
~~- Intra-frequency cell id~~	~~cell 2~~
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- 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 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

Information Element	Value/Remark
- Amount of reporting	~~Infinity~~ Not Present
- Reporting interval	~~16 seconds~~ 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/Remarks
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
	Check to see if this IE is absent
- SFN-SFN observed time difference	
- Cell synchronisation information	Check to see if it's the same code for cell 2
- Primary CPICH Info	Check to see if this IE is absent
- Primary Scrambling Code	Check to see if this IE is 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
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 '1e'
- Intra-frequency event identity	
- Cell measurement event results	Check to see if it's the same code for cell 2
- Primary CPICH info	
- Primary scrambling code	

MEASUREMENT CONTROL (Step 15)

Information Element	Value/Remarks
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

~~Master Information Block (Step 21)~~

~~Information Element~~	~~Value/Remarks~~
~~MIB Value Tag~~	~~2~~

~~System Information Block type 12 (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~~	~~13~~
~~- Intra-frequency cell info list~~	~~*Cell 2 and Cell 3 are added*~~
~~- CHOICE intra-frequency cell removal~~	~~Remove no intra-frequency cells~~
~~- New intra-frequency info list~~	
~~- Intra-frequency cell id~~	~~Set to id of cell 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~~
~~- Cell selection and Re-selection info~~	~~Not Present – use default values~~
~~- Intra-frequency cell id~~	~~Set to id of cell 3~~
~~- 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 3~~
~~- Primary CPICH TX power~~	~~Not Present~~
~~- TX Diversity Indicator~~	~~FALSE~~
~~- Cell selection and Re-selection info~~	~~Not Present – use default values~~
~~- Intra-frequency measurement quantity~~	
~~- Filter Coefficient~~	~~0~~
~~- Measurement quantity~~	~~CPICH RSCP~~
~~- Intra-frequency measurement for RACH reporting~~	~~Not Present~~
~~- Maximum number of reported cells on RACH~~	~~No report~~
~~- Reporting information for state CELL_DCH~~	
~~- Intra-frequency reporting quantity~~	~~CPICH RSCP~~
~~- Measurement reporting mode~~	
~~- Measurement Reporting Transfer Mode~~	~~Acknowledged mode RLC~~
~~- Periodic Reporting / Event Triggering Report Mode~~	~~Periodic Reporting~~
~~- CHOICE report criteria~~	~~Perioidical reporting criteria~~
~~- Amount of reporting~~	~~Infinity~~
~~- Reporting interval~~	~~250 msec~~
~~- 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~~

System Information Block type 11 for cell 2 (Step 21)

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 Ec/No
- Intra-frequency measurement system information	
- Intra-frequency measurement identity	Not present
- Intra-frequency cell info list	
- CHOICE intra-frequency cell removal	Remove no intra-frequency cell
- 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	TRUE
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Primary scrambling code of 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	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
- UE internal measurement system information	Not Present

CELL UPDATE (Step 22)

Information Element	Value/Remarks
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 present
- SFN-SFN observed time difference	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 '1b'
- Cell measurement event results	
- CHOICE mode	FDD
- Primary CPICH info	
- Primary scrambling code	Check to see if it's the same code for cell 1
- 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 delete all measurement and reporting contexts obtained from System Information Block type 12 messages. It~~ 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 15 the UE shall stop measurement activities pertaining to periodic reporting of cell 2's CPICH 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 the UE shall report cell 1 and 3's CPICH RSCP value by transmitting MEASUREMENT REPORT messages~~not resume measurements and any associated reporting activities for cell 3's CPICH RSCP, no MEASUREMENT REPORT messages shall be detectable by the SS in the uplink DCCH~~.

8.4.1.8 Measurement Control and Report: Inter-frequency measurement for transition from CELL_FACH to CELL_DCH state

8.4.1.8.1 Definition

8.4.1.8.2 Conformance requirement

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

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

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

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

2> resume the measurement reporting.

If the IE "DPCH compressed mode info" is included, and if the IE group "transmission gap pattern sequence configuration parameters" is included, the UE shall for each transmission gap pattern sequence perform the following consistency checks:

1> if UE, according to its measurement capabilities, and for the measurement purpose indicated by IE "TGMP", requires UL compressed mode for measurements on any of the cells to be measured according to UE variable CELL_INFO_LIST, and CHOICE 'UL/DL mode' indicates 'DL only':

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if UE, according to its measurement capabilities, and for the measurement purpose indicated by IE "TGMP", requires DL compressed mode for measurements on any of the cells to be measured according to UE variable CELL_INFO_LIST, and CHOICE 'UL/DL mode' indicates 'UL only':

2> set the variable INVALID_CONFIGURATION to TRUE.

1> if UE already has an active transmission gap pattern sequence that, according to IE "TGMP", has the same measurement purpose, and both patterns will be active after the new configuration has been taken into use:

2> set the variable INVALID_CONFIGURATION to TRUE.

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 "TGPS Status Flag"):

2> deactivate this pattern sequence at the beginning of the frame, indicated by IE "Activation time" received in this message, when the new configuration received in this message is taken into use.

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 new configuration has been taken into use:

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

2> begin the inter-frequency 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 TS 25.331 subclause 8.2.11.2.

~~When transiting from CELL_FACH state to CELL_DCH state, the UE shall stop monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 11 or 12 messages. If the UE has stored measurement control information of type "inter-frequency" for which the IE "measurement validity" is present and the IE "UE state for reporting" has been assigned to "CELL_DCH", it shall resume the stored measurement reporting activities after it has re-entered CELL_DCH state from CELL_FACH state. The UE shall activate or deactivate inter-frequency measurements by decoding the "DPCH compressed mode status info" IE in MEASUREMENT CONTROL messages.~~

Reference

3GPP TS 25.331 clause 8.4.1.7.2, 8.4.1.3

8.4.1.8.3 Test Purpose

1. To confirm that the UE stops monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 11 or 12 when it transits from CELL_FACH state to CELL_DCH state.
2. To confirm that the UE resumes inter-frequency measurements and reporting stored for which the measurement control information has IE "measurement validity" assigned to the value "CELL_DCH", after it re-enters CELL_DCH state from CELL_FACH state.
3. To confirm that the UE resumes inter-frequency measurement and reporting activities after it has received a MEASUREMENT CONTROL message specifying that a stored compressed mode pattern sequence be re-activated.

~~To confirm that the UE stops monitoring the list of cells assigned in the IE "inter-frequency cell info" in System Information Block type 11 or 12 when it transits from CELL_FACH state to CELL_DCH state. To confirm that the UE resumes inter-frequency measurements and reporting stored for which the measurement control information has IE "measurement validity" assigned to the value "CELL_DCH", after it re-enters CELL_DCH state from CELL_FACH state. To confirm that the UE resumes inter-frequency measurement and reporting activities after it has received a MEASUREMENT CONTROL message specifying that a stored compressed mode pattern sequence be re-activated.~~

Note that this test assumes that the UE requires compressed mode to perform inter-frequency measurements.

8.4.1.8.4 Method of test

Initial Condition

System Simulator: 3 cells – Cells 1, cell 4 and cell 5 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~~.

Related ICS/IXIT statements

- Compressed mode required~~Supported~~ yes/no

~~if yes, set flag X0 to TRUE,~~

~~else set flag X0 to FALSE.~~

In case the UE supports both PS and CS CN domains, this test shall be run twice, once starting from the initial condition CS-DCCH+DTCH_DCH, and once starting from the initial condition PS-DCCH+DTCH_DCH.

Test Procedure

Table 8.4.1.8-1 illustrates the downlink power to be applied for the 3 cells in this test.

Table 8.4.1.8-1

Para-meter	Unit	Cell 1	Cell 4	Cell 5
UTRA RF Channel Number		Ch. 1	Ch. 2	Ch. 2
CPICH Ec	dBm/3.84 MHz	-60	-75	-75

Test procedure when the initial condition is that the UE is connected to the PS domain:

The UE is in CELL_DCH state in cell 1 (step 1). SS transmits MEASUREMENT CONTROL message to add cell 5 into the IE "inter-frequency cell info" (step 2). ~~In the MEASUREMENT CONTROL message, the parameters of the IE "inter-frequency measurement reporting criteria" are as follow: event-triggered with event identity ='2c', Measurementreporting quantity = "CPICH RSCP", threshold for non-used frequency = '-85 dBm', hysteresis = '1.0dB', and time to trigger = '10 seconds', amount of reporting = '1' and reporting interval = '0'. In the same message, IE "Measurement validity" is present and "UE state" is assigned the value 'CELL_DCH'.~~ If UE requires compressed mode~~flag X0 is set to TRUE~~, SS checks that no MEASUREMENT REPORT messages are detected on the uplink DCCH after it has transmitted the MEASUREMENT CONTROL message (step 3). If UE do not require compressed mode~~flag X0 is set to FALSE~~, SS checks that UE sends MEASUREMENT REPORT message on the uplink DCCH.

SS sends a PHYSICAL CHANNEL RECONFIGURATION message on the downlink DCCH and configures PRACH and S-CCPCH physical channels (step 4). The UE shall reconfigure itself to receive and transmit using the new common physical channels assigned, and send PHYSICAL CHANNEL RECONFIGURATION COMPLETE on the uplink DCCH(step 5). SS modifies the content of Master Information Block and System Information Block type 12 messages, such that cell 4 is added in the list of cells assigned in the IE "inter-frequency cell info" (step 6). SS transmits SYSTEM INFORMATION CHANGE INDICATION message to UE. Once again, SS verifies that the UE does not transmit MEASUREMENT REPORT messages in the uplink direction (step 7).

SS sends PHYSICAL CHANNEL RECONFIGURATION message, and configures dedicated physical. If UE requires compressed mode~~flag X0 is set to TRUE~~, i~~I~~n this message, SS commands the UE to start applying compressed mode mechanism for DPCH. The UE shall move to CELL_DCH state and then reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 9). SS waits for 10 seconds. The UE shall transmit 1 MEASUREMENT REPORT message, containing the selected frequency quality estimate (in this case CPICH RSCP) of cell ~~5~~4. The UE shall also report the triggering of event '2c' in the IE "Event results" of MEASUREMENT REPORT message (step 10). ~~SS verifies that this message does not contain measured results for cell 4.~~

SS transmit~~t~~s a MEASUREMENT CONTROL message on the downlink DCCH using AM-RLC (step 11). ~~In this message, SS modifies the measurement control information for measurement identity = "14" and set IE "CHOICE reporting criteria" to "periodic reporting criteria".~~The UE shall transmit MEASUREMENT REPORT messages at 2 seconds interval (step 12).

If UE requires compressed mode~~flag X0 is set to TRUE~~, SS transmits a PHYSICAL CHANNEL RECONFIGURATION message and deactivates the compressed mode pattern sequence with "TGPSI" IE set to 1 (step 13). The UE shall respond by sending PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and also stop the periodic reporting activities (step 14).

Following this if UE requires compressed mode~~flag X0 is set to TRUE~~, SS sends a MEASUREMENT CONTROL message and re-activates the compressed mode pattern sequence by using the "DPCH compressed mode status" IE (step 15). SS confirms that the UE has reconfigured itself to start measurement reporting again. The SS shall ~~be able to~~ receive MEASUREMENT REPORT messages continuously at 2 seconds interval (step 16). The SS then sends a MEASUREMENT CONTROL ordering the UE to release the measurement corresponding to identity 14, and to stop compressed mode (step 17). At reception of that message, the UE shall stop compressed mode and delete the measurement corresponding to that identity (step 18). The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to order the UE to start compressed mode once again (step 19). The UE answers with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, and starts compressed mode (step 20). SS checks then that it does not receive any MEASUREMENT REPORT message from the UE after that point (step 21).

Test procedure when the initial condition is that the UE is connected to the CS domain:

The UE is in CELL_DCH state in cell 1 (step 1). SS transmits MEASUREMENT CONTROL message to add cell 5 into the IE "inter-frequency cell info" (step 2). SS checks that no MEASUREMENT REPORT messages are detected on the uplink DCCH after it has transmitted the MEASUREMENT CONTROL message (step 3).

SS sends PHYSICAL CHANNEL RECONFIGURATION message (step 8). In that message, SS commands the UE to start applying compressed mode. The UE shall then reply with PHYSICAL CHANNEL RECONFIGURATION COMPLETE message (step 9).

The UE shall transmit 1 MEASUREMENT REPORT message, containing the selected frequency quality estimate (in this case CPICH RSCP) of cell 5. The UE shall also report the triggering of event ‘2c’ in the IE "Event results" of MEASUREMENT REPORT message (step 10).

SS transmits a MEASUREMENT CONTROL message on the downlink DCCH using AM-RLC (step 11). The UE shall transmit MEASUREMENT REPORT messages at 2 seconds interval (step 12). SS transmits a PHYSICAL CHANNEL RECONFIGURATION message and deactivates the compressed mode pattern sequence with "TGPSI" IE set to 1 (step 13). The UE shall respond by sending PHYSICAL CHANNEL RECONFIGURATION COMPLETE message and also stop the periodic reporting activities (step 14). Following this, SS sends a MEASUREMENT CONTROL message and re-activates the compressed mode pattern sequence by using the "DPCH compressed mode status" IE (step 15). SS confirms that the UE has reconfigured itself to start measurement reporting again. The SS shall receive MEASUREMENT REPORT messages continuously at 2 seconds interval (step 16). The SS then sends a MEASUREMENT CONTROL ordering the UE to release the measurement corresponding to identity 14, and to stop compressed mode (step 17). At reception of that message, the UE shall stop compressed mode and delete the measurement corresponding to that identity (step 18). The SS then transmits a PHYSICAL CHANNEL RECONFIGURATION message to the UE to order the UE to start compressed mode once again (step 19). The UE answers with a PHYSICAL CHANNEL RECONFIGURATION COMPLETE message, and starts compressed mode (step 20). SS checks then that it does not receive any MEASUREMENT REPORT message from the UE after that point (step 21).

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1				(Valid for both the PS and CS cases) The initial state of UE is in CELL_DCH state of cell 1.

Step	Direction		Message	Comment
	UE	SS		
2	←		MEASUREMENT CONTROL	(Valid for both the PS and CS cases) SS specifies inter-frequency measurement and reporting parameters for cell 5, with "measurement validity" IE present and "UE state" set to "CELL_DCH".
3	→		MEASUREMENT REPORT	(Valid for both the PS and CS cases) If compresed mode is not required (refer ICS/IXIT), ~~If flag X0 is set to FALSE~~, SS checks that UE transmit this message, or else SS checks that no MEASUREMENT REPORT messages are detected on the uplink DCCH.
4	←		PHYSICAL CHANNEL RECONFIGURATION	(Only in the PS case) SS configures PRACH and S-CCPCH physical resources.
5	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	(Only in the PS case) UE shall move to CELL_FACH state.
6	←		Master Information Block System Information Block type 12	(Only in the PS case) SS modifies MIB and SIB 12 in order to include cell 4 into the list of cells in IE "inter-frequency cell info".
7	←		SYSTEM INFORMATION CHANGE INDICATION	(Only in the PS case) After SS transmits this message, SS confirms that there are no transmissions of MEASUREMENT REPORT message in the uplink direction.
8	←		PHYSICAL CHANNEL RECONFIGURATION	(Valid for both the PS and CS cases) See specific message content below.~~SS configures dedicated physical channels with compressed mode parameters~~
9	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	(Valid for both the PS and CS cases) UE shall move to CELL_DCH state.
10	→		MEASUREMENT REPORT	(Valid for both the PS and CS cases) UE shall resume inter-frequency measurement task for cell 5 and report the measured CPICH RSCP value for cell 5.
11	←		MEASUREMENT CONTROL	(Valid for both the PS and CS cases) SS changes the reporting criteria for cell 5 to 'periodic reporting'
12	→		MEASUREMENT REPORT	(Valid for both the PS and CS cases) UE shall begin to transmit this message at 2 seconds interval. If compresed mode is not required (refer ICS/IXIT), ~~If flag X0 is set to FALSE~~, the test ends here.
13	←		PHYSICAL CHANNEL RECONFIGURATION	(Valid for both the PS and CS cases) SS deactivates the currently used pattern sequence for compressed mode operation.

Step	Direction		Message	Comment
	UE	SS		
14	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	(Valid for both the PS and CS cases) UE stays in CELL_DCH state. SS verifies that no MEASUREMENT REPORT messages are received.
15	←		MEASUREMENT CONTROL	(Valid for both the PS and CS cases) SS activates the pattern sequence stored by the UE.
16	→		MEASUREMENT REPORT	(Valid for both the PS and CS cases) SS checks that MEASURE-MENT REPORT messages are received at 2 seconds interval.
17	←		MEASUREMENT CONTROL	(Valid for both the PS and CS cases) SS orders the UE to release the measurement with identity 14, and to stop compressed mode
18				(Valid for both the PS and CS cases) SS checks that the UE has stopped compressed mode.
19	←		PHYSICAL CHANNEL RECONFIGURATION	(Valid for both the PS and CS cases) SS orders the UE to start compressed mode again.
20	→		PHYSICAL CHANNEL RECONFIGURATION COMPLETE	(Valid for both the PS and CS cases) The UE transmits the response message and starts compressed mode
21				(Valid for both the PS and CS cases) SS checks that the UE does not send any MEASUREMENT REPORT

Specific Message Content

Unless explicitely stated, the messages below shall be used for both the CS case and the PS case

MEASUREMENT CONTROL (Step 2)

Information Element	Value/Remark

Measurement Identity	14
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 cell info list	
- CHOICE inter-frequency cell removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	5
- Frequency info	~~5~~
- UARFCN uplink (Nu)	UARFCN of the uplink frequency for cell 5
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 5
- 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 5
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	Not Present
~~- Inter-frequency cell id~~	~~5~~
- 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	~~Not Present~~
-UE autonomous update	On with no reporting
- ~~UE~~Non autonomous update mode	Not Present
- CHOICE report criteria	Inter-frequency measurement reporting criteria
- Parameters required for each event	
- Inter-frequency event identity	2c
- Threshold used frequency	Not Present
- W used frequency	Not Present
- Hysteresis	1.0 dB
- Time to trigger	10 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
- Parameters required for each non-used frequency	
- Threshold non used frequency	-85 dBm
- W non-used frequency	0.0
DPCH compressed mode status info	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 4)

Use the same message sub-type found in Annex A titled "(Packet to CELL_FACH from CELL_DCH in PS)".

Master Information Block (Step 6)

Information Element	Value/Remark
Value Tag	2

System Information Block type 12 (Step 6)

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
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 cells removal	No inter-frequency cells removed
- New inter-frequency info list	
- Inter-frequency cell id	Set to id of cell 4
- 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 4
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection info	Not Present – use default values
- Inter-RAT measurement system information	Not Present
- Traffic volume measurement system information	Not Present
- UE internal measurement system information	Not Present

PHYSICAL CHANNEL RECONFIGURATION (Step 8 for the PS case)

If UE do not require compressed mode~~flag X0 is set to FALSE~~, 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)".

If UE requires compressed mode~~flag X0 is set to TRUE~~, ~~U~~use the same message sub-type found in Annex A, which is entitled "(Packet to CELL_DCH from CELL_FACH 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
~~- Timing Indication~~	~~Maintain~~
~~- Downlink DPCH power control information~~	
~~- DPC mode~~	~~0 (Single)~~
~~- CHOICE Mode~~	~~FDD~~
~~- Power offset $P_{Pilot-DPDCH}$~~	~~0~~
~~- DL rate matching restriction information~~	~~Not Present~~
~~- Spreading factor~~	~~Refer to the parameter set in TS 34.108~~
~~- Fixed or flexible position~~	~~Refer to the parameter set in TS 34.108Flexible~~
~~- TFCI existence~~	~~Refer to the parameter set in TS 34.108FALSE~~
~~- Number of bits for Pilot bits (SF=128, 256)~~	~~Refer to the parameter set in TS 34.108Not Present~~
- DPCH compressed mode info	
- TGPSI	1
- TGPS Status Flag	~~Active~~Activate
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256
- Transmission gap pattern sequence configuration parameters	
- TGMP	FDD Measurement
- TGPRC	~~62~~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 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~~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	0

PHYSICAL CHANNEL RECONFIGURATION (Step 8 for the CS case)

Information Element	Value/Remark
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
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	Activate
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256
- 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	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	
- CHOICE mode	FDD
- Primary CPICH info	Set to scrambling code of cell 1
- Cell ID	Not present
- PDSCH with SHO DCH info	Not present
- PDSCH code mapping	Not present
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	0
- 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	Same as the code currently allocated to the UE
- Scrambling code change	Code change
- TPC combination index	0
- SSDT cell identity	Not present
- Closed loop timing adjustment mode	Not present

MEASUREMENT REPORT (Step 3 and 10)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 14
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 5
- UARFCN (downlink)	Check to see if set to the UARFCN of the downlink frequency for cell 5
- 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
- SFN-SFN observed time difference	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 5
- 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	
- CHOICE event result	Inter-frequency event results
- Inter-frequency event identity	Check to see if it's set to '2c'
- Inter-frequency cells	
- Frequency Info	
- UARFCN (uplink)	Check to see if set to the UARFCN of the uplink frequency for cell ~~5~~4
- UARFCN (downlink)	Check to see if set to the UARFCN of the downlink frequency for cell ~~5~~4
- Non frequency related measurement event results	
- Primary CPICH Info	
- Primary Scrambling Code	Check to see if set to the same code for cell ~~5~~4

MEASUREMENT CONTROL (Step 11)

Information Element	Value/Remark
Measurement Identity	14
Measurement Command	~~Modify~~Set up
Measurement Reporting Mode	
- Measurement Reporting Transfer Mode	Acknowledged Mode RLC
- Periodic Reporting / Event Trigger Reporting Mode	~~Event Trigger~~Periodical reportiong
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	5
- Frequency info	
- UARFCN uplink (Nu)	UARFCN of the uplink frequency for cell 5
- UARFCN downlink (Nd)	UARFCN of the downlink frequency for cell 5
- 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 5
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cells for measurement	
- Inter-frequency cell id	5
- 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	
- 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
- Inter-frequency set update	Not Present
- CHOICE report criteria	Periodic reporting criteria
- Amount of reporting	Infinity
- Reporting interval	2000 milliseconds
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 12, 16)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 14
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 5
- UARFCN (downlink)	Check to see if set to the UARFCN of the downlink frequency for cell 5
- UTRA carrier RSSI	Check to see if it is absent
- Inter-frequency cell measurement results	
- Cell measured results	
- Cell Identity	Check to see if is absent
- SFN-SFN observed time difference	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 5
- 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
- CFN-SFN observed time difference	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 13)

Use the same message transmitted in step 8 with the following modifications:

Information Element	**Value/Remark**
Activation time	(256+CFN-(CFN MOD 8 + 8))MOD 256
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	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 15)

Information Element	Value/Remark
Measurement Identity	14
Measurement Command	Modify
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Not Present
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN+(256 – TTI/10msec)) mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Status Flag	Activate~~e~~
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256

MEASUREMENT CONTROL (Step 17)

Information Element	Value/Remark
Measurement Identity	14
Measurement Command	Release
Measurement Reporting Mode	Not Present
Additional measurements list	Not Present
CHOICE measurement type	Not Present
DPCH compressed mode status info	
- TGPS reconfiguration CFN	(Current CFN+(256 – TTI/10msec)) mod 256
- Transmission gap pattern sequence	
- TGPSI	1
- TGPS Flag	Deactivate
- TGCFN	Not present

PHYSICAL CHANNEL RECONFIGURATION (Step 19 for the PS case)

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	Activate
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256
- 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	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	N ot Present

PHYSICAL CHANNEL RECONFIGURATION (Step 19 for the CS case)

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	Activate
- TGCFN	(Current CFN+(256 – TTI/10msec)) mod 256
- 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	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	
- CHOICE mode	FDD
- Primary CPICH info	Set to scrambling code of cell 1
- Cell ID	Not present
- PDSCH with SHO DCH info	Not present
- PDSCH code mapping	Not present
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	Primary CPICH may be used
- DPCH frame offset	0
- 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	Same as the code currently allocated to the UE

- Scrambling code change	Code change
- TPC combination index	0
- SSDT cell identity	Not present
- Closed loop timing adjustment mode	Not present

8.4.1.8.5 Test Requirement

After step 2, if UE requires compressed mode~~flag X0 is set to TRUE~~, the UE shall not send any MEASUREMENT REPORT messages on the uplink DCCH of cell 1. If UE do not require compressed mode~~flag X0 is set to FALSE~~, the UE shall send a MEASUREMENT REPORT message on the uplink DCCH of cell 1.

After step 4 and 8, UE shall transmit PHYSICAL CHANNEL RECONFIGURATION COMPLETE message on the uplink DCCH using AM RLC.

After step 8, the UE shall start compressed mode using the method specified in the PHYSICAL CHANNEL RECONFIGURATION message sent in step 8.

After step 9 the UE shall transmit a MEASUREMENT REPORT message, containing the IE "measured results" reporting cell 5's CPICH RSCP value. The UE shall also report the triggering of event '2c' by including IE "Event results" in the MEASUREMENT REPORT message. ~~The UE shall not transmit any MEASUREMENT REPORT messages pertaining to cell 4's measurements.~~

After step 11 the UE shall send MEASUREMENT REPORT messages, containing cell 5's CPICH RSCP measured value in IE "Measured results" at 2 seconds interval. The "Event results" IE shall be omitted in these messages.

If UE requires compressed mode~~flag X0 is set to TRUE,~~ ~~A~~after step 14, the UE shall not transmit any MEASUREMENT REPORT messages.

If UE requires compressed mode~~flag X0 is set to TRUE,~~ ~~A~~after step 15, the UE shall start compressed mode and resume the transmission of MEASUREMENT REPORT messages with identical contents as in those received after step 11.

After step 17, the UE shall deactivate compressed mode.

After step 20, the UE shall not transmit any MEASUREMENT REPORT message to SS.

8.4.1.14 Measurement Control and Report: Cell forbidden to affect reporting range

8.4.1.14.1 Definition

8.4.1.14.2 Conformance requirement

The reporting range affects the reporting events 1A and 1B. The reporting range is defined as a function of all the Primary CPICHs in the active set. If the parameter W is set to 0, the reporting range is defined relative to the best Primary CPICH. However, there could be cases where it is good to forbid a specific Primary CPICH to affect the reporting range. This mechanism could be effective if the operator knows by experience that the quality of a Primary CPICH is very unstable in a specific area and therefore should not affect the reporting of the other Primary CPICHs.

The UE shall ignore that a Primary CPICH is forbidden to affect the reporting range if all of the following conditions are fulfilled:

- the Primary CPICH is included in active set; and
- all cells in active set are defined as Primary CPICHs forbidden to affect the reporting range.

~~When event 1A is ordered by the UTRAN in a MEASUREMENT CONTROL message, the UE shall send a MEASUREMENT REPORT message when a primary CPICH measured has entered the specified reporting range. The UTRAN can request that a certain primary CPICH be forbidden to affect the reporting range used for event 1A measurement reporting. However, the UE shall ignore such a request from the UTRAN if two conditions are fulfilled – (a) the primary CPICH concerned is included in the active set, and (b) all cells in the active set are defined as primary CPICHs forbidden to affect the reporting range.~~

Reference

3GPP TS 25.331 clause 14.1.2.1, 14.1.2.2, clause 14.1.5.4

8.4.1.14.3 Test Purpose

1. To confirm that the UE reports the triggering of event 1A to the SS, if a primary CPICH currently measured by the UE enters the reporting range.
2. To confirm that the UE reports the triggering of event 1B to the SS, if a primary CPICH currently measured by the UE leaves the reporting range.
3. To confirm that the UE use the forbidden cell indicated in the MEASUREMENT CONTROL message to affect the reporting range.
4. To confirm that the UE ignores that a primary CPICH is forbidden to affect the reporting range when (a) the primary CPICH concerned is included in active set and (b) all cells in the active set are defined as primary CPICHs forbidden to affect the reporting range.

~~To confirm that the UE reports the triggering of event 1A to the SS, if a primary CPICH currently measured by the UE enters the reporting range. To confirm that the UE ignores that a primary CPICH is forbidden to affect the reporting range when (a) the primary CPICH concerned is included in active set and (b) all cells in the active set are defined as primary CPICHs forbidden to affect the reporting range.~~

8.4.1.14.4 Method of test

Initial Condition

System Simulator: 3 cells – Cell 1, cell 2 and cell 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 8.4.1.14-1 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 text in this clause.~~

Table 8.4.1.14-1

~~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~~	~~-60~~	~~-85~~	~~-75~~	~~-70~~	~~-60~~	~~-70~~	~~-70~~	~~-85~~

Para-meter	Unit	Cell 1	Cell 2	Cell 3
UTRA RF Channel Number		Ch. 1	Ch. 1	Ch. 1
CPICH Ec	dBm/3.84 MHz	-60	-75	-70

The UE is initially in CELL_DCH state of cell 1.

SS sends a MEASUREMENT CONTROL message with cell 1, cell 2 and cell 3 listed in IE "intra-frequency cell info list". In this message the IE "CHOICE reporting criteria" is set to "intra-frequency measurement report criteria", with the IE "intra-frequency event identity" set to "1A" and “1B”. The IE "reporting range" is set to 12 dB for both events in the MEASUREMENT CONTROL message. The UE shall send a MEASUREMENT REPORT on the uplink DCCH, which contains the IE "Event results" to report that intra-frequency event 1A is triggered by cell 3.

SS executes the active set update procedure, requesting that cell 3 be added to the active set. The UE shall respond with ACTIVE SET UPDATE COMPLETE message on the uplink DCCH and then include cell 3 into its current active set. ~~SS configures itself according to the values in columns "T1" shown above.~~ The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of intra-frequency event 1A. In these messages, the IE "Events results" shall indicate that intra-frequency event 1A and 1B is triggered by cell 2. Upon reception of MEASUREMENT REPORT message, ~~SS sends ACTIVE SET UPDATE message to request cell 2 to be added to the active set. The UE shall respond with ACTIVE SET UPDATE COMPLETE message on the uplink DCCH and then include cell 2 into its current active set.~~

SS sends a MEASUREMENT CONTROL message to command that ~~all cells~~ cell 3 in the active set ~~are~~ is forbidden to update the reporting range for event 1A and 1B. The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of intra-frequency event 1B. In these message, the IE "Events results" shall indicate that intra-frequency event 1B is triggered by cell 2.~~SS configures itself according to the values in columns "T2" shown above.~~ SS sends a MEASUREMENT CONTROL message to command that cell 1 in the active set is forbidden to update the reporting range for event 1A and 1B. The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of intra-frequency event 1A. In these message, the IE "Events results" shall indicate that intra-frequency event 1A is triggered by cell 2. SS sends a MEASUREMENT CONTROL message to command that all cells in the active set are forbidden to update the reporting range for event 1A and 1B. The UE shall transmit a MEASUREMENT REPORT message on the uplink DCCH to report the triggering of intra-frequency event 1A. In these messages, the IE "Events results" shall indicate that intra-frequency event 1A and 1B is triggered by cell 2. ~~The UE shall not transmit a MEASUREMENT REPORT message on the uplink to report the triggering of intra-frequency reporting event 1A. SS reconfigures itself according to the values in column "T0" shown in table 8.4.1.14-1 above. The UE shall transmit MEASUREMENT REPORT message to report triggering intra-frequency event identity 1A, and also to report the CPICH RSCP readings for cell 1, cell 2 and cell 3 in IE "Measured results".~~

Expected sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		MEASUREMENT CONTROL	UE is initially in CELL_DCH state in cell 1. Cell 1, cell 2 and cell 3 are listed in IE "Intra-frequency cell info list". The IE "CHOICE reporting criteria" is set to "Intra-frequency measurement reporting criteria" and IE "Intra-frequency event identity" is set to "1A" and "1B", with IE "reporting range" set to 12 dB for both events.
2	→		MEASUREMENT REPORT~~Void~~	
3	←		ACTIVE SET UPDATE~~Void~~	SS requests UE to add cell 3 into active set.
4	→		ACTIVE SET UPDATE COMPLETE~~Void~~	
5	←		~~MEASUREMENT CONTROL~~Void	~~Cell 1, cell 2 and cell 3 are listed in IE "Intra-frequency cell info list". The IE "CHOICE reporting criteria" is set to "Intra-frequency measurement reporting criteria" and IE "Intra-frequency event identity" is set to "1A", with IE "reporting range" set to 12 dB.~~
6	→		MEASUREMENT REPORT	~~UE shall report that cell 3 has entered the reporting range for intra-frequency reporting event 1A.~~Measurement made on cell 2 should trigger event 1A and 1B.
7	←		MEASUREMENT CONTROL~~ACTIVE SET UPDATE~~	~~UE shall add cell 3 into the active set~~SS request UE to monitor cell 2 for event '1A' and '1B'. SS set cell 3 to be forbidden to affect reporting range.
8	→		MEASUREMENT REPORT~~ACTIVE SET UPDATE COMPLETE~~	Measurement made on cell 2 should trigger event 1B.
9	←		MEASUREMENT CONTROL	SS request UE to monitor cell 2 for event '1A' and '1B'. SS set cell 1 to be forbidden to affect reporting range.~~SS configures itself according to the settings stated in column "T1" of table 8.4.1.14-1.~~
10	→		MEASUREMENT REPORT~~MEASUREMENT REPORT~~	Measurement made on cell 2 should trigger event 1A.~~UE shall report that cell 2 has entered the reporting range for intra-frequency reporting event 1A.~~
~~10a~~	←		~~ACTIVE SET UPDATE~~	~~UE shall add cell 2 into the active set~~
~~10b~~	→		~~ACTIVE SET UPDATE COMPLETE~~	
11	←		MEASUREMENT CONTROL	SS request UE to monitor cell 2 for event '1A' and '1B'. SS forbids all cells in active list to affect the reporting range
12	→		MEASUREMENT REPORT	Same as step 3.~~SS configures itself according to the settings stated in column "T2" of table 8.4.1.14-1.~~
~~13~~				~~SS verifies that no MEASUREMENT REPORT messages are received in the uplink direction~~

~~14~~			~~SS configures itself according to the settings stated in column "T3" of table 8.4.1.14-1.~~
~~15~~	~~→~~	~~MEASUREMENT REPORT~~	~~UE shall report that cell 3 has entered the reporting range for intra-frequency reporting event 1A.~~

Specific Message Contents

MEASUREMENT CONTROL (Step ~~5~~1)

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in ~~Annex A~~ [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/Remark
RRC transaction identifier	1
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
- New intra-frequency info list	
- Intra-frequency cell id	1
- 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 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
- Intra-frequency cell id	3
- 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 3
- Primary CPICH TX power	Not Present
- TX Diversity Indicator	FALSE
- Cell for measurement	
- Intra-frequency cell id	1, 2 and 3
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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

Information Element	Value/Remark
- 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 conditions 1	Not Present
- Triggering conditions 2	~~Active set cells and~~ monitored set cells
- Reporting range	12.0 dB
- Cells forbidden to affect reporting range	Not Present
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	~~1~~Infinity
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	~~e3~~3
- Intra-frequency event identity	1b
- Triggering conditions 1	monitored set cells
- Triggering conditions 2	Not Present
- Reporting range	12.0 dB
- Cells forbidden to affect reporting range	Not Present
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	Infinity
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step ~~6~~2)

Information Element	Value/Remarks
RRC transaction identifier	Check to see if set to 1
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
- SFN-SFN observed time difference	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 measured results	
- Cell Identity	Check to see if it is absent
- SFN-SFN observed time difference	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	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 same code for cell 3
- Intra-frequency event identity	Check to see if set to '1b'
- 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 2

ACTIVE SET UPDATE (Step ~~7~~3)

The contents of ACTIVE SET UPDATE message for this test step is identical to the same message found in Annex A with the following exceptions:

Information Element	Value/remark
RRC transaction identifier	0
Radio link addition information	
- Primary CPICH Info	
- Primary Scrambling Code	Set to same code as assigned for cell 3
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH can be used.
- DPCH frame offset	0 chips
- 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	512
- 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
Radio link removal information	Not Present

ACTIVE SET UPDATE COMPLETE (Step ~~8 and Step 10b~~4)

Information Element	Value/remark
RRC transaction identifier	Check to see if it is set to 0

MEASUREMENT REPORT (Step ~~10~~6 and 12)

Information Element	Value/Remarks
RRC transaction identifier	Check to see if set to 1
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
- SFN-SFN observed time difference	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	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 same code for cell 2
- Intra-frequency event identity	Check to see if set to '1b'
- 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 2

MEASUREMENT CONTROL (Step 7)

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	Value/Remark
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Modify
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	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1a
- Triggering conditions 1	Not Present
- Triggering conditions 2	monitored set cells
- Reporting range	12.0 dB
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 3
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	Infinity
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1b
- Triggering conditions 1	monitored set cells
- Triggering conditions 2	Not Present
- Reporting range	12.0 dB
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 3
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	Infinity
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 8)

Information Element	Value/Remarks

RRC transaction identifier	Check to see if set to 1
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
- SFN-SFN observed time difference	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	Check to see if set to 'Intra-frequency measurement event results'
- Intra-frequency event identity	Check to see if set to '1b'
- 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 2

MEASUREMENT CONTROL (Step 9)

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in [9] TS 34.108 clause 9 with the following exceptions:

Information Element	**Value/Remark**
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Modify
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	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1a
- Triggering conditions 1	Not Present
- Triggering conditions 2	monitored set cells
- Reporting range	12.0 dB
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 1
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	Infinity
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
- Intra-frequency event identity	1b
- Triggering conditions 1	monitored set cells
- Triggering conditions 2	Not Present
- Reporting range	12.0 dB
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 1
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	Infinity
- Reporting interval	4000
- Reporting cell status	
- CHOICE reported cells	Report cells within monitored set on used frequency
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

MEASUREMENT REPORT (Step 10)

Information Element	**Value/Remarks**

RRC transaction identifier	Check to see if set to 1
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
- SFN-SFN observed time difference	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	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 same code for cell 2

~~ACTIVE SET UPDATE (Step 10a)~~

~~The contents of ACTIVE SET UPDATE message for this test step is identical to the same message found in Annex A with the following exceptions:~~

~~Information Element~~	~~Value/remark~~
~~RRC transaction identifier~~	~~0~~
~~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~~	~~0 chips~~
~~- 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~~	~~512~~
~~- 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~~
~~Radio link removal information~~	~~Not Present~~

MEASUREMENT CONTROL (Step 11)

The contents of MEASUREMENT CONTROL message for this test step is identical to the same message found in Annex A with the following exceptions:

Information Element	Value/Remark
RRC transaction identifier	1
Measurement Identity	1
Measurement Command	Modify
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	Not Present
- Intra-frequency measurement quantity	Not Present
- Intra-frequency reporting quantity	Not Present
- CHOICE report criteria	Intra-frequency measurement reporting criteria
- Parameters required for each events	*Only ~~1~~ 2 events ~~is~~ are specified*
- Intra-frequency event identity	1a
- Triggering conditions 1	Not Present
- Triggering conditions 2	~~Active~~ Monitored set cells
- Reporting range	12 dB
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 1
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 2
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 3
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	1
- Reporting interval	0
- Reporting cell status	
- CHOICE reported cells	Report cells within ~~active~~ monitored set
- Maximum number of reported cells	~~e3~~3
- Intra-frequency event identity	1b
- Triggering conditions 1	Monitored set cells
- Triggering conditions 2	Not Present
- Reporting range	12 dB
- Cells forbidden to affect reporting range	
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 1
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 2
- CHOICE Mode	FDD
- Primary CPICH info	
- Primary scrambling code	Set to the same code as in cell 3
- W	0
- Hysteresis	0 dB
- Threshold used frequency	Not Present
- Reporting deactivation threshold	3
- Replacement activation threshold	Not Present
- Time to trigger	0 msec
- Amount of reporting	1
- Reporting interval	0
- Reporting cell status	

- CHOICE reported cells	Report cells within monitored set
- Maximum number of reported cells	3
DPCH compressed mode status info	Not Present

~~MEASUREMENT REPORT (Step 15)~~

~~Information Element~~	~~Value/Remarks~~
~~RRC transaction identifier~~	~~Check to see if set to 1~~
~~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~~
~~- SFN-SFN observed time difference~~	~~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 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~~
~~- SFN-SFN observed time difference~~	~~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 measured results~~	
~~- Cell Identity~~	~~Check to see if it is absent~~
~~- SFN-SFN observed time difference~~	~~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~~	~~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 same code for cell 3~~

8.4.1.14.5 Test requirement

After step ~~5~~1, the UE shall send a MEASUREMENT REPORT message on the uplink DCCH. The message shall contain the IE "Event results" to report that cell 3 has triggered intra-frequency event 1A and cell 2 has triggered intra-frequency event 1B.

After step 3, the UE shall send a ACTIVE SET UPDATE COMPLETE message on the uplink DCCH..

After step ~~9~~4, the UE shall transmit MEASUREMENT REPORT message on the uplink DCCH. The message shall contain IE "Event results" to report that cell 2 has triggered intra-frequency event 1A and 1B.

After step 7, the UE shall transmit MEASUREMENT REPORT message on the uplink DCCH. The message shall contain IE "Event results" to report that cell 2 has triggered intra-frequency event 1B.

After step 9, the UE shall transmit MEASUREMENT REPORT message on the uplink DCCH. The message shall contain IE "Event results" to report that cell 2 has triggered intra-frequency event 1A.

~~After step 12, the UE shall not send MEASUREMENT REPORT message on the uplink DCCH to report the triggering of intra-frequency event identity 1A.~~

After step ~~14~~11, the UE shall send a MEASUREMENT REPORT message on the uplink DCCH. The message shall contain IE "Event results" to report that cell ~~3~~ 2 has triggered intra-frequency event 1A and 1B.

8.4.1.16 Measurement Control and Report: Traffic volume measurement for transition from idle mode to CELL_FACH state

8.4.1.16.1 Definition

8.4.1.16.2 Conformance requirement

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

1> store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT_IDENTITY;

1> begin traffic volume measurement reporting according to the assigned information.

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":

…

2> for measurement type "UE positioning measurement":

…

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.

~~Upon transition from idle mode to CELL_FACH state, the UE shall store the measurement control information from the IE "Traffic volume measurements system information" received in System Information Block type 11 or System Information Block type 12. UE shall begin traffic volume measurement reporting according to the assigned information.~~

Reference

3GPP TS 25.331 clause 8.4.1.9.4, 3GPP TS 25.331 clause 8.4.1.3

8.4.1.16.3 Test Purpose

1. To confirm that after a state transition from idle mode to CELL_FACH state, the UE shall begin a traffic volume type measurement, as specified in System Information Block type 11 or 12 messages on BCCH.

2. To confirm that in CELL_FACH state, the UE shall send a MEASUREMENT REPORT message when reporting criteria is satisfied. During CELL_FACH state, if the UE receives a MEASUREMENT CONTROL message, it shall perform the measurement and reporting tasks based on the MEASUREMENT CONTROL message received.

~~To confirm that after a state transition from idle mode to CELL_FACH state, the UE shall begin a traffic volume type measurement, as specified in System Information Block type 11 or 12 messages on BCCH. To confirm that in CELL_FACH state, the UE shall send a MEASUREMENT REPORT message when reporting criteria is satisfied. During CELL_FACH state, if the UE receives a MEASUREMENT CONTROL message, it shall perform the measurement and reporting tasks based on the MEASUREMENT CONTROL message received.~~

8.4.1.16.4 Method of test

Initial Condition

System Simulator: 1cell

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

The UE is initially in idle mode. The System Information Block type 11 message is modified with respect to the default settings to request UE to perform traffic volume measurements. Key measurement parameters are as follows: measurement quantity = "RLC Buffer Payload", report criteria = "periodic reporting criteria", reporting interval = "6 seconds", reporting amount = 'infinity'. The System Information type 12 message is not broadcasted.

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 ~~prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. The UE shall transmit a RRC CONNECTION REQUEST message on the uplink CCCH, SS replies with RRC CONNECTION SETUP message and allocates PRACH and S-CCPCH physical channels for uplink and downlink usage. UE shall then enter CELL_FACH state.~~

UE shall begin traffic volume measurements, and shall send MEASUREMENT REPORT message after completing first measurement. UE shall send second MEASUREMENT REPORT message 6 seconds after first MEASUREMENT REPORT message.

SS sends MEASUREMENT CONTROL message to the UE. This message overwrites measurement information saved from System information type 11. Key measurement parameters are as follow: measurement type = "traffic volume measurement", measurement quantity = "RLC Buffer Payload", report criteria = "Event triggered, event 4B: Transport Channel Traffic Volume becomes smaller than an absolute threshold ", Time to trigger = "5 seconds", pending time after trigger = "16 seconds", "reporting threshold = '4K'. Since there is no uplink traffic, UE shall send MEASUREMENT REPORT message after 5 seconds (time to trigger interval). SS calls for generic procedure C.2 to check that UE is in CELL_FACH state.

Expected Sequence

Step	Direction UE SS	Message	Comment
1	←	System Information Block type 11	The UE is idle mode and camped onto cell 1. System Information Block type 11 to be transmitted is 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.	
~~2~~			~~SS prompts the test operator to make an outgoing call.~~
~~3~~	→	~~RRC CONNECTION REQUEST~~	
~~4~~	←	~~RRC CONNECTION SETUP~~	~~SS allocates common physical channels to UE.~~
5	→	~~RRC CONNECTION COMPLETE~~Void	~~UE shall enter CELL_FACH state, and transmit this message to acknowledge the RRC CONNECTION SETUP message.~~
6	→	MEASUREMENT REPORT	
7	→	MEASUREMENT REPORT	Time difference between earlier and this MEASUREMENT REPORT message should be 6 Seconds.
8	←	MEASUREMENT CONTROL	Traffic volume measurement reporting is requested if measurement is below threshold.
9			SS monitors the uplink DCCH to confirm that no MEASUREMENT REPORT messages are received in 5 seconds.
10	→	MEASUREMENT REPORT	Measurement report because event 4b is triggered
11	←→	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

System Information Block type 11 (Step 1)

Information Element	Value/Remarks
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	~~Not Present~~
- Intra-frequency measurement identity	Not Present
- 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 1
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- 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 Not Present
- Inter-RAT measurement system information	
- Traffic volume measurement system information	4
- Traffic volume measurement ID	Rach
- Traffic volume measurement object list	RLC Buffer Payload
- Traffic volume measurement quantity	
- Traffic volume reporting quantity	True
- RB buffer payload	False
- RB buffer payload average	False
- RB buffer payload variance	Not Present
- Traffic volume measurement reporting criteria	All States except CELL_DCH
- Measurement validity	
- Measurement reporting mode	Acknowledged Mode
- Measurement report transfer mode	Periodical
- Periodical or event trigger	Periodical reporting criteria
- Report criteria system Information	Infinity
- Reporting amount	6 seconds
- Reporting interval	Not Present
- UE internal measurement system information	

~~RRC CONNECTION REQUEST (Step 3)~~

~~Information Element~~	~~Value/Remarks~~
~~Initial UE Identity~~	~~Check to see if it is the same as the IMSI in USIM card, TMSI or P-TMSI previously allocated.~~
~~Establishment cause~~	~~Check to see if set to originating call of the compatible traffic classes supported by the UE~~
~~Measured results on RACH~~	~~Check to see if IE is absent~~

~~RRC CONNECTION SETUP (Step 4)~~

~~Use the same message sub-type found in Annex A, which is titled "Transition to CELL_FACH".~~

MEASUREMENT REPORT (Step 6,7)

Information Element	Value/Remarks
Measurement identity	Check to see if set to 4
Measured Results	
- CHOICE measurement	Check to see if set to "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

MEASUREMENT CONTROL (Step 8)

Information Element	Value/Remark
Measurement Identity	4
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Measurement validity	Not Present
- Report criteria	Traffic Volume Reporting Criteria
- UL transport channel id	Rach ~~Null~~
- Event specific parameters	
- Event id	4B
- Reporting threshold	4K
- Time to trigger	5000 ms
- Pending time after trigger	16000 ms
- Tx interruption after trigger	Not Present
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Event trigger
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 10)

Information Element	Value/Remarks
Measurement identity	4
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	Traffic Volume Event Results
- UL transport channel causing event	Rach ~~Null~~
- Traffic volume event identity	4B

8.4.1.16.5 Test Requirement

After step 5 the UE shall send MEASUREMENT REPORT messages on the uplink DCCH containg RLC buffer payload information for all SRBs. After 6 seconds UE shall send second MEASUREMENT REPORT messages containg RLC buffer payload information for all SRBs.

After step 8 the UE shall overwrite measurement information received from system information type 11 with measurement information in MEASUREMENT CONTROL message. The UE shall not send MEASUREMENT REPORT message within time to trigger interval. After step 9 the UE shall transmit MEASUREMENT REPORT messages with event identity 4B.

8.4.1.17 Measurement Control and Report: Traffic volume measurement for transition from idle mode to CELL_DCH state

8.4.1.17.1 Definition

8.4.1.17.2 Conformance requirement

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

1> begin a traffic volume type measurement, assigned in System Information Block type 11 (or System Information Block type 12.

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":

…

2> for measurement type "UE positioning measurement":

…

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.

~~Upon transition from idle mode to CELL_DCH state, the UE shall begin a traffic volume type measurement, assigned in System Information Block type 11 or System Information Block type 12.~~

Reference

3GPP TS 25.331 clause 8.4.1.8.4, 3GPP TS 25.331 clause 8.4.1.3

8.4.1.17.3 Test Purpose

1. To confirm that after a state transition from idle mode to CELL_DCH state, the UE begin a traffic volume type measurement, as specified in System Information Block type 11 or 12 messages on BCCH. When entering CELL_DCH state, the UE shall send a MEASUREMENT REPORT message when reporting criteria is satisfied.
2. During CELL_DCH state, if the UE receives a MEASUREMENT CONTROL message, it shall perform the measurement and reporting tasks based on the MEASUREMENT CONTROL message received.

~~To confirm that after a state transition from idle mode to CELL_DCH state, the UE begin a traffic volume type measurement, as specified in System Information Block type 11 or 12 messages on BCCH. When entering CELL_DCH state, the UE shall send a MEASUREMENT REPORT message when reporting criteria is satisfied. During CELL_DCH state, if the UE receives a MEASUREMENT CONTROL message, it shall perform the measurement and reporting tasks based on the MEASUREMENT CONTROL message received.~~

8.4.1.17.4 Method of test

Initial Condition

System Simulator: 1cell

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

The UE is initially in idle mode. The System Information Block type 11 message is modified with respect to the default settings to request UE to perform traffic volume measurements. Key measurement parameters are as follows: measurement quantity = "Average RLC Buffer Payload", report criteria = "Event triggered, event 4B", reporting threshold = "8K", report transfer mode = "Unacknowledged mode". The System Information type 12 message is not broadcasted.

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).~~SS prompts the operator to make an outgoing call for one of the traffic classes supported by the UE. Dedicated resources are allocated to the UE during RRC connection establishment procedure.~~

UE shall begin traffic volume measurements after entering in CELL_DCH state. The UE shall send MEASUREMENT REPORT message because uplink traffic is below threshold.

SS sends MEASUREMENT CONTROL message to the UE. This message reconfigures measurement information saved from System information type 11. Key measurement parameters are as follow: measurement type = "traffic volume measurement", measurement quantity = "RLC Buffer Payload", report criteria = "Periodic reporting criteria", reporting interval = "8 seconds", reporting amount = "8". The UE shall periodically send MEASUREMENT REPORT message to report RLC Buffer Payload for each RB.

SS sends MEASUREMENT CONTROL message to release traffic volume measurement. UE shall not send measurement report after receiving this message. 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 idle mode and camped onto cell 1. System Information Block type 11 to be transmitted is 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.	
~~2~~				~~SS prompts the test operator to make an outgoing call.~~
~~3~~	~~→~~		~~RRC CONNECTION REQUEST~~	
~~4~~	~~←~~		~~RRC CONNECTION SETUP~~	~~SS allocates dedicated physical channels to UE.~~
5	~~→~~		~~RRC CONNECTION COMPLETE~~Void	~~UE shall enter CELL_DCH state.~~
6	→		MEASUREMENT REPORT	Event 4B is triggered. This message should come on RB1.
7	←		MEASUREMENT CONTROL	Periodic Traffic volume measurement reporting is requested.
8	→		MEASUREMENT REPORT	This message should come on RB2.

9	→	MEASUREMENT REPORT	Time difference between earlier and this MEASUREMENT REPORT message should be 8 Seconds.
10	←	MEASUREMENT CONTROL	Release traffic volume measurement.
11			Wait for 8 Seconds to confirm that UE does not send measurement report message.
12	←→	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

System Information Block type 11 (Step 1)

Information Element	Value/Remarks
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	~~Not Present~~
- Intra-frequency measurement identity	Not Present
- 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 1
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- 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	
- Traffic volume measurement ID	2
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	Average RLC Buffer Payload
- Time Interval to take an average	200 msec
- Traffic volume reporting quantity	
- RB buffer payload	False
- RB buffer payload average	True
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	CELL_DCH
- Measurement reporting mode	
- Measurement report transfer mode	Unacknowledged Mode
- Periodical or event trigger	Event Trigger
- Report criteria system Information	Traffic Volume Reporting Criteria
- UL transport channel id	Not Present
- Event specific parameters	
- Event id	4B
- Reporting threshold	8K
- Time to trigger	Not Present
- Pending time after trigger	Not Present
- Tx interruption after trigger	Not Present
- UE internal measurement system information	Not Present

~~RRC CONNECTION REQUEST (Step 3)~~

~~**Information Element**~~	~~**Value/Remarks**~~
~~Initial UE Identity~~	~~Check to see if it is the same as the IMSI in USIM card, TMSI or P-TMSI previously allocated.~~
~~Establishment cause~~	~~Check to see if set to originating call of the compatible traffic classes supported by the UE~~
~~Measured results on RACH~~	~~Check to see if IE is absent~~

~~RRC CONNECTION SETUP (Step 4)~~

~~Use the same message sub-type found in Annex A, which is titled "Transition to CELL_DCH".~~

MEASUREMENT REPORT (Step 6)

Information Element	**Value/Remarks**
Measurement identity	Check to see if set to 2
Measured Results	
- CHOICE measurement	Check to see if set to "traffic volume measured results list"
- Traffic volume measurement results	
- RB identity	1
- RLC buffer payload	Check to see if this IE is absent
- RLC buffer payload average	Check to see if this IE is present
- 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 absent
- RLC buffer payload average	Check to see if this IE is present
- 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 absent
- RLC buffer payload average	Check to see if this IE is present
- 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 absent
- RLC buffer payload average	Check to see if this IE is present
- 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	
- UL transport channel causing event	DCH 5
- Traffic volume event identity	4B

MEASUREMENT CONTROL (Step 7)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	~~Modify~~Set up
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
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 RBe	False
- Variance of RLC Buffer Payload for each RB	False
- Measurement validity	Not Present
- CHOICE Reporting criteria	Periodical Reporting Criteria
- Amount of reporting	8
- Reporting interval	8 Sec
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 8,9)

Information Element	Value/Remarks
Measurement identity	2
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

MEASUREMENT CONTROL (Step 10)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Release
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

8.4.1.17.5 Test Requirement

After step 5, due to triggering of event 4B, the UE shall send MEASUREMENT REPORT message using unacknowledged mode of RLC. After step 7, UE shall send MEASUREMENT REPORT message using Acknowledged mode of RLC. After 8 seconds UE shall send second MEASUREMENT REPORT message. After step 10, the UE shall not send MEASUREMENT REPORT message.

8.4.1.18 Measurement Control and Report: Traffic volume measurement for transition from CELL_FACH state to CELL_DCH state

8.4.1.18.1 Definition

8.4.1.18.2 Conformance requirement

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

- retrieve each set of measurement control information of measurement type "traffic volume" stored;
  - if the optional IE "measurement validity" for this measurement has not been included:
    - delete the measurement;
  - if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states except CELL_DCH":
    - stop measurement reporting; and
    - save the measurement to be used after the next transition to CELL_FACH state;
  - if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":
    - continue measurement reporting;
  - if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "CELL_DCH":
    - resume this measurement and associated reporting;
- if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message when transiting to CELL_DCH state:
  - continue an ongoing traffic volume type measurement, assigned in System Information Block type 11 or System Information Block type 12.

Reference

3GPP TS 25.331 clause 8.4.1.7.4

8.4.1.18.3 Test Purpose

1. To confirm that the UE performs traffic volume measurements and the associated reporting when it enters CELL_DCH state from CELL_FACH state, and that such measurement contexts (and optionally, the reporting context) valid for CELL_DCH state have been previously stored.

2. To confirm that the UE shall continue to perform traffic volume measurement listed in the System Information Block type 11 or 12 messages, if no previously assigned measurements are present. The UE shall transmit MEASUREMENT REPORT messages if reporting conditions stated in System Information Block type 11 or 12 messages have been satisfied.

8.4.1.18.4 Method of test

Initial Condition

System Simulator: 1 cell

UE: PS-DCCH+DTCH_FACH (state 6-11) as specified in clause 7.4 of TS 34.108

Test Procedure

Initially the UE is in CELL_FACH state. MEASUREMENT CONTROL message is sent to the UE to establish traffic volume measurement context with optional IE "measurement validity" is not present. The UE shall perform measurement and reporting as assigned in MEASUREMENT CONTROL message. RADIO BEARER RECONFIGURATION procedure is used to take the UE from CELL_FACH state to CELL_DCH state. While entering CELL_DCH state from CELL_FACH state, the UE shall delete traffic volume measurement contexts if optional IE "measurement validity" is not present. So, in CELL_DCH state UE shall not perform traffic volume measurement and reporting. UE is taken to the CELL_FACH state from CELL_DCH state using RADIO BEARER RECONFIGURATION procedure. The UE shall not send MEASUREMENT REPORT message as measurement context is already deleted.

The~~Similarly~~ behavior of the UE when moved from CELL_FACH state to CELL_DCH state and assigned traffic volume measurement context is present with IE "measurement validity" is set to "All But CELL_DCH state" or "CELL_DCH state" or "All states" is tested in a similar way.

When the UE is in CELL_FACH state, System Information is modified to assign traffic volume measurement and reporting to the UE. No previously assigned traffic volume measurement contexts are present in the UE. A SYSTEM INFORMATION CHANGE INDICATION is sent on FACH to inform the UE about the change.The UE is taken to CELL_DCH state from CELL_FACH state using RADIO BEARER RECONFIGURATION procedure. In CELL_DCH state the UE shall continue traffic volume measurement and reporting as assigned in System Information. Traffic volume measurement and reporting is released by sending MEASUREMENT CONTROL message.

Expected Sequence

Step	Direction		Message	Comment
	UE	SS		
1	←		MEASUREMENT CONTROL	Optional IE "measurement validity" is not included.
2	→		MEASUREMENT REPORT	
3	←		RADIO BEARER RECONFIGURATION	
4	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall delete measurement context setup by MEASUREMENT CONTROL message (Step 1).
5				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
6	←		RADIO BEARER RECONFIGURATION	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.
8				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.

9	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "All But CELL_DCH".
10	→	MEASUREMENT REPORT	.
11	←	RADIO BEARER RECONFIGURATION	
12	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall stop traffic volume measurement setup by MEASUREMENT CONTROL message (Step 9).
13			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
14	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 9).
15	←	RADIO BEARER RECONFIGURATION	
16	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.
17	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "CELL_DCH".
18			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
19	←	RADIO BEARER RECONFIGURATION	
20	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall start traffic volume measurement setup by MEASUREMENT CONTROL message (Step 17).
21	→	MEASUREMENT REPORT	
22	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 17)
23	←	RADIO BEARER RECONFIGURATION	
24	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.

25	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "All states".
26	→	MEASUREMENT REPORT	
27	←	RADIO BEARER RECONFIGURATION	
28	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall continue traffic volume measurement setup by MEASUREMENT CONTROL message (Step 25).
29	→	MEASUREMENT REPORT	
30	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 25)
31	←	RADIO BEARER RECONFIGURATION	
32	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_FACH state.
33	←	MIB and SIB11 modified	Traffic volume measurements and reporting is assigned to Ues
33a	←	SYSTEM INFORMATION CHANGE INDICATION	
34	→	MEASUREMENT REPORT	
35	←	RADIO BEARER RECONFIGURATION	
36	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_DCH state from CELL_FACH state UE shall continue traffic volume measurement assigned in System Information (Step 33).
37	→	MEASUREMENT REPORT	
38	←	MEASUREMENT CONTROL	UE shall release measurement context assigned in System Information (Step 33).

Specific Message Content

MEASUREMENT CONTROL (Step 1)

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	8
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2)

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
- RB identity	20
- 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 (Step 3, 11, 19, 27, and 35)

Use the same message type found in Annex A with condition set to A4.

RADIO BEARER RECONFIGURATION (Step 6, 15, 23, and 31)

Use the same message type found in Annex A with condition set to A5.

MEASUREMENT CONTROL (Step 9)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	All But CELL_DCH

MEASUREMENT REPORT (Step 10)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	2

MEASUREMENT CONTROL (Step 14)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Release
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 17)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	3
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	CELL_DCH

MEASUREMENT REPORT (Step 21)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	3

MEASUREMENT CONTROL (Step 22)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	3

MEASUREMENT CONTROL (Step 25)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	4
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- UL transport channel identity	RACH
- UL transport channel identity	DCH :1
- UL transport channel identity	DCH : 5
- Measurement validity	All States

MEASUREMENT REPORT (Step 26, and 29)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	4

MEASUREMENT CONTROL (Step 30)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	4

Master Information Block (Step 33)

Information Element	Value/Remarks
MIB Value Tag	2

System Information Block type 11 (Step 33)

Information Element	Value/Remarks
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	~~Not Present~~
- Intra-frequency measurement identity	Not Present
- 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 1
- Primary CPICH Tx power	Not Present
- TX Diversity indicator	FALSE
- 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	
- Traffic volume measurement ID	5
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	~~Not Present~~all states
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds
- UE internal measurement system information	Not Present

SYSTEM INFORMATION CHANGE INDICATION (Step 33a)

Information Element	Value/Remarks
Paging record list	Not Present
BCCH modification info	
- MIB Value Tag	3
- BCCH modification time	Not Present

MEASUREMENT REPORT (Step 34, and 37)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	5

MEASUREMENT CONTROL (Step 38)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	5

8.4.1.18.5 Test Requirement

The UE shall send MEASUREMENT REPORT message in steps 21, 29 and 37. The UE shall not send MEASUREMENT REPORT message in steps 5, 8, and 13.

8.4.1.19 Measurement Control and Report: Traffic volume measurement for transition from CELL_DCH to CELL_FACH state

8.4.1.19.1 Definition

8.4.1.19.2 Conformance requirement

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

1> retrieve each set of measurement control information of measurement type "traffic volume" stored in the variable MEASUREMENT_IDENTITY; and

2> if the optional IE "measurement validity" for this measurement has not been included:

3> delete the measurement associated with the variable MEASUREMENT_IDENTITY.

2> if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "CELL_DCH":

3> stop measurement reporting;

3> store the measurement associated with the variable MEASUREMENT_IDENTITY to be used after the next transition to CELL_DCH state.

2> if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":

3> continue measurement reporting.

2> if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "all states except CELL_DCH":

3> resume this measurement and associated reporting.

1> if no traffic volume type measurement has been assigned to the UE with a MEASUREMENT CONTROL message that is valid in CELL_FACH or CELL_PCH or URA_PCH states (stored in the variable

MEASUREMENT_IDENTITY), which has the same identity as the one indicated in the IE "Traffic volume measurement system information":

2> store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 (or System Information Block type 11, according to subclause 8.1.1.6.11) in the variable MEASUREMENT_IDENTITY;

2> begin traffic volume measurement reporting according to the assigned information.

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

- ~~retrieve each set of measurement control information of measurement type "traffic volume" stored in the UE; and~~
  - ~~if the optional IE "measurement validity" for this measurement has not been included:~~
    - ~~delete the associated measurement;~~
  - ~~if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "CELL_DCH":~~
    - ~~stop measurement reporting;~~
    - ~~save the associated measurement to be used after the next transition to CELL_DCH state;~~
  - ~~if the IE "measurement validity" for the measurement has been included, and the IE "UE state" has been assigned to value "all states":~~
    - ~~continue measurement reporting;~~
  - ~~if the IE "measurement validity" has been included and the IE "UE state" has been assigned to value "all states except CELL_DCH":~~
    - ~~resume this measurement and associated reporting;~~
- ~~if no traffic volume type measurements applicable to CELL_FACH states are stored in the UE:~~
    - ~~store the measurement control information from the IE "Traffic volume measurement system information" received in System Information Block type 12 or System Information Block type 11;~~
    - ~~begin traffic volume measurement reporting according to the assigned information.~~

Reference

3GPP TS 25.331 clauses 8.4.1.6.6.

8.4.1.19.3 Test Purpose

1. The UE shall performs traffic volume measurements and the associated reporting when it enters CELL_FACH state from CELL_DCH state, and that such measurement contexts (and optionally, the reporting context) valid for CELL_FACH state have been previously stored.

2. The UE shall perform traffic volume measurement listed in the System Information Block type 11 or 12 messages, if no previously assigned measurements are present. The UE shall transmit MEASUREMENT REPORT messages if reporting conditions has been satisfied.

Reference

3GPP TS 25.331 clause 8.4.1.6.6

8.4.1.19.4 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

Initially the UE is in CELL_DCH state. MEASUREMENT CONTROL message is sent to the UE to establish traffic volume measurement context with optional IE "measurement validity" is not present. The UE shall perform measurement and reporting as assigned in MEASUREMENT CONTROL message. RADIO BEARER RECONFIGURATION procedure is used to take the UE from CELL_DCH state to CELL_FACH state. While entering CELL_FACH state from CELL_DCH state, the UE shall delete traffic volume measurement contexts if optional IE "measurement validity" is not present. So, in CELL_FACH state UE shall not perform traffic volume measurement and reporting. UE is taken to the CELL_DCH state from CELL_FACH state using RADIO BEARER RECONFIGURATION procedure. The UE shall not send MEASUREMENT REPORT message as measurement context is already deleted.

The ~~Similarly~~ behavior of the UE when moved from CELL_DCH state to CELL_FACH state and assigned traffic volume measurement context is present with IE "measurement validity" is set to "All But CELL_DCH state" or "CELL_DCH state" or "All states" is tested in a similar way.

When the UE is in CELL_DCH state, System Information is modified to assign traffic volume measurement and reporting to the UE. No previously assigned traffic volume measurement contexts are present in the UE. The UE is taken to CELL_FACH state from CELL_DCH state using RADIO BEARER RECONFIGURATION procedure. In CELL_FACH state the UE shall perform traffic volume measurement and reporting as assigned in System Information. Traffic volume measurement and reporting is released by sending MEASUREMENT CONTROL message.

Expected Sequence

Step	**Direction**		**Message**	**Comment**
	UE	**SS**		
1	←		MEASUREMENT CONTROL	Optional IE "measurement validity" is not included.
2	→		MEASUREMENT REPORT	
3	←		RADIO BEARER RECONFIGURATION	
4	→		RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall delete measurement context setup by MEASUREMENT CONTROL message (Step 1).
5				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
6	←		RADIO BEARER RECONFIGURATION	
7	→		RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.
8				SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.

9	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "All But CELL_DCH".
10			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
11	←	RADIO BEARER RECONFIGURATION	
12	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall start traffic volume measurement setup by MEASUREMENT CONTROL message (Step 9).
13	→	MEASUREMENT REPORT	
14	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 9).
15	←	RADIO BEARER RECONFIGURATION	
16	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.
17	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "CELL_DCH".
18	→	MEASUREMENT REPORT	
19	←	RADIO BEARER RECONFIGURATION	
20	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall stop traffic volume measurement setup by MEASUREMENT CONTROL message (Step 17).
21			SS waits for 8 seconds to confirm that there is no MEASUREMENT REPORT message from UE.
22	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 17)
23	←	RADIO BEARER RECONFIGURATION	
24	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.

25	←	MEASUREMENT CONTROL	IE "measurement validity" is set to "All states".
26	→	MEASUREMENT REPORT	
27	←	RADIO BEARER RECONFIGURATION	
28	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall continue traffic volume measurement setup by MEASUREMENT CONTROL message (Step 25).
29	→	MEASUREMENT REPORT	
30	←	MEASUREMENT CONTROL	UE shall release measurement context setup by MEASUREMENT CONTROL message (Step 25)
31	←	RADIO BEARER RECONFIGURATION	
32	→	RADIO BEARER RECONFIGURATION COMPLETE	UE is in CELL_DCH state.
33	←	SIB12 modified	Traffic volume measurements and reporting is assigned to UEs
34	←	RADIO BEARER RECONFIGURATION	
35	→	RADIO BEARER RECONFIGURATION COMPLETE	While entering in CELL_FACH state from CELL_DCH state UE shall start traffic volume measurement as assigned in System Information (Step 33).
36	→	MEASUREMENT REPORT	
37	←	MEASUREMENT CONTROL	UE shall release measurement context assigned in System Information (Step 33).

Specific Message Content

MEASUREMENT CONTROL (Step 1)

Information Element	Value/Remark
Measurement Identity	1
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Measurement validity	Not Present
- Report criteria	Periodical Reporting Criteria
- Reporting amount	8
- Reporting interval	8 Sec
Measurement reporting mode	
- Transfer Mode	Acknowledged mode
- Periodical or event trigger	Periodic
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT REPORT (Step 2)

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
- RB identity	20
- 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 (Step 3, 11, 19, 27, and 34)

Use the same message type found in Annex A with condition set to A5.

RADIO BEARER RECONFIGURATION (Step 6, 15, 23, and 31)

Use the same message type found in Annex A with condition set to A4.

MEASUREMENT CONTROL (Step 9)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	All But CELL_DCH

MEASUREMENT REPORT (Step 13)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	2

MEASUREMENT CONTROL (Step 14)

Information Element	Value/Remark
Measurement Identity	2
Measurement Command	Release
Measurement reporting mode	Not Present
Additional measurement list	Not Present
DPCH compressed mode status	Not Present

MEASUREMENT CONTROL (Step 17)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	3
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Measurement validity	CELL_DCH

MEASUREMENT REPORT (Step 18)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	3

MEASUREMENT CONTROL (Step 22)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	3

MEASUREMENT CONTROL (Step 25)

The contents of this message are identical to MEASUREMENT CONTROL (Step 1) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	4
Measurement Command	Setup
- CHOICE measurement type	Traffic Volume Measurement
- Traffic volume measurement object list	
- UL transport channel identity	RACH
- UL transport channel identity	DCH :1
- UL transport channel identity	DCH : 5
- Measurement validity	All States

MEASUREMENT REPORT (Step 26, and 29)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	4

MEASUREMENT CONTROL (Step 30)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	4

System Information Block type 12 (Step 33)

Information Element	Value/Remarks
FACH measurement occasion info	Not Present
Measurement control system information	
- Use of HCS	Not used
- Cell_selection_and_reselection_quality	CPICH RSCP
- 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	
- Traffic volume measurement ID	5
- Traffic volume measurement object list	Not Present
- Traffic volume measurement quantity	RLC Buffer Payload
- Traffic volume reporting quantity	
- RB buffer payload	True
- RB buffer payload average	False
- RB buffer payload variance	False
- Traffic volume measurement reporting criteria	Not Present
- Measurement validity	Not Present
- Measurement reporting mode	
- Measurement report transfer mode	Acknowledged Mode
- Periodical or event trigger	Periodical
- Report criteria system Information	Periodical reporting criteria
- Reporting amount	Infinity
- Reporting interval	8 seconds
- UE internal measurement system information	Not Present

MEASUREMENT REPORT (Step 36)

The contents of this message are identical to MEASUREMENT REPORT (Step 2) message with the following exceptions:

Information Element	Value/Remarks
Measurement identity	5

MEASUREMENT CONTROL (Step 37)

The contents of this message are identical to MEASUREMENT CONTROL (Step 14) message with the following exceptions:

Information Element	Value/Remark
Measurement Identity	5

8.4.1.19.5 Test Requirement

The UE shall send MEASUREMENT REPORT message in steps 13, 29 and 36. The UE shall not send MEASUREMENT REPORT message in steps 5, 8, and 21.

8.4.1.23 Measurement Control and Report: Intra-frequency measurement for events 1C and 1D

8.4.1.23.1 Definition

8.4.1.23.2 Conformance requirement

1. When event 1C is configured in the UE, the UE shall:

1> if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for one or more primary CPICHs, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for one or more primary CPICHs, for each of these primary CPICHs:

2> if all required reporting quantities are available for that cell; and

2> if the equations have been fulfilled for a time period indicated by "Time to trigger", and if the primary CPICH that is better is not included in the active set but the other primary CPICH is any of the primary CPICHs included in the active set, and if that first primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1C_EVENT:

3> include that primary CPICH in the "cells recently triggered" in the variable TRIGGERED_1C_EVENT.

1> if the value of "Replacement activation threshold" for this event is less than or equal to the current number of cells in the active set or equal to 0 and if any primary CPICHs are stored in the "cells recently triggered" in the variable TRIGGERED_1C_EVENT:

2> if "Reporting interval" for this event is not equal to 0:

3> if the IE "Periodical reporting running" in the variable TRIGGERED_1C_EVENT is set to FALSE:

4> start a timer for with the value of "Reporting interval" for this event and set the IE "Periodical reporting running" in the variable TRIGGERED_1C_EVENT to TRUE.

3> set "sent reports" for that primary CPICH in the variable TRIGGERED_1C_EVENT to 1.

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

3> set in "intra-frequency measurement event results": "Intrafrequency event identity" to "1c"; and

3> include in "cell measurement event results" all entries of the "cells recently triggered" in the variable TRIGGERED_1C_EVENT not in the active set as well as the "primary CPICH info" of all the primary CPICHs in the active set for which the measured value is worse (i.e. greater for pathloss and less for the other measurement quantities) than the one of the entry in "cell recently triggered" that has the best measured value. The "primary CPICH info" for those cells shall be ordered according to their measured value taking into account their cell individual offset, beginning with the best cell to the worst one;

3> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.

2> ….

~~1. When event 1C is configured in the UE, the UE shall:~~

~~– if "Measurement quantity" is "pathloss" and Equation 1 below is fulfilled for a primary CPICH, or if "Measurement quantity" is "CPICH Ec/N0" or "CPICH RSCP", and Equation 2 below is fulfilled for a primary CPICH:~~

~~– if the equations have been fulfilled during the time "Time to trigger", and if the primary CPICH that is better is not included in the active set but the other primary CPICH is any of the primary CPICHs included in the active set, and if that primary CPICH is not included in the "cells triggered" in the variable TRIGGERED_1C_EVENTS:~~

~~– include that primary CPICH in the "cells triggered" in the variable TRIGGERED_1C_EVENTS;~~

~~– if the value of "Replacement activation threshold" for this event is lower than the current number of cells in the active set or equal to 0:~~

~~– if "Reporting interval" for this event is not equal to 0:~~

~~– start a timer for that primary CPICH with the value of "Reporting interval" for this event;~~

~~– set "sent reports" for that primary CPICH in the variable TRIGGERED_1C_EVENTS;~~

~~- send a measurement report with IEs set as below:~~

~~- in "intra-frequency event results": "Intrafrequency event identity" to "1c" and the first entry in "cell measurement event results" to the CPICH info of the primary CPICH not in the active set that triggered the report; and~~

~~- the second entry in "cell measurement event results" to the CPICH info of the primary CPICH in the active set that now is worse than the new primary CPICH and has the best measured value (lowest measured result for pathloss and highest measured result for other measurements); and~~

~~- the rest of the entries to other primary CPICHs that are now worse than this new primary CPICH in the order of their measured value;~~

~~- "measured results" and possible "additional measured results" according to TS 25.331 clause 8.4.2;~~

2. When event 1D is configured in the UE, the UE shall:

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":

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, not taking into account the cell individual offset for each cell.

4> set the IE "measured results" and the IE "additional measured results" according to subclause 8.4.2, not taking into account the cell individual offset for each cell.

NOTE: Event 1D can be triggered by an active or by a non-active CPICH.

~~2. When event 1D is configured in the UE, the UE shall:~~

~~- 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:~~

~~- if the equations have been fulfilled during the time "Time to trigger":~~

~~- set "best cell" in the variable BEST_CELL_1D_EVENT to that primary CPICH that triggered the event;~~

~~- send a measurement report with IEs set as below:~~

~~- in "intra-frequency event results"; "Intrafrequency event identity" to "1d" and "cell measurement event results" to the CPICH info of the primary CPICH that triggered the report.~~

~~- "measured results" and possible "additional measured results" according to TS 25.331 clause 8.4.2;~~

Reference

3GPP TS 25.331 clause 14.1.2.3, 14.1.2.4.

8.4.1.23.3 Test Purpose

1.A To confirm that the UE sends MEASUREMENT REPORT message if event 1C is configured, and number of cells in active set is greater than or equal to 'Replacement activation threshold' parameter, and if monitored or detected primary CPICH on same frequency becomes better than a primary CPICH in active set.

1.B To confirm that the UE does not send MEASUREMENT REPORT message indicating event 1C if number of cells in active set is less than 'Replacement activation threshold' parameter, and if monitored or detected primary CPICH on same frequency becomes better than a primary CPICH in active set.

1.C To confirm that the UE stops periodic reporting of event 1C if the cell that triggered event 1C is added into active set.

2. To confirm that the UE sends MEASUREMENT REPORT message if event 1D is configured and intra-frequency measurement indicates change in best cell.

8.4.1.23.4 Method of test

Initial Condition

System Simulator: 3 cells – The initial configurations of the 3 cells in the SS shall follow the values indicated in the column marked "T0" in table 8.4.1.23-1. The table is found in "Test Procedure" clause.

UE: CS-DCCH+DTCH_DCH (State 6-9) or PS-DCCH+DTCH_DCH (State 6-10) ~~CS-DCCH_DCH_Initial (State 6-1) or PS-DCCH_DCH_Initial (State 6-3)~~ 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 8.4.1.23-1 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 text in this clause.

Table 8.4.1.23-1

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	-60	-60	-66	-70	-70	Switched off	Switched off	-70	-60

The UE is initially in CELL_DCH state of cell 1 and has received the default broadcast information from SIB11/12 in Cell 1. SS then performs a soft handover procedure by sending ACTIVE SET UPDATE message on the downlink DCCH. The UE shall reply with an ACTIVE SET UPDATE COMPLETE message on the uplink DCCH, and include cell 2 to the active set when the activation time specified has elapsed.

SS then ask the UE to perform Intra-frequency measurement and report event 1C and event 1D. In MEASUREMENT CONTROL message, IE 'Replacement activation threshold' is set to 3 and IE 'Cell individual offset' is set to +6 dBm for Cell 3. SS configures itself according to the values in columns "T1" shown above. Cell 3 becomes better than Cell 2 that is in active set of the UE, due to parameter 'Cell Individual offset' for Cell 3. However the UE shall not send MEASUREMENT REPORT message indicating event 1C because number of cells in active set is less than parameter 'Replacement Activation Threshold'.

SS then sends MEASUREMENT CONTROL message to the UE to modify earlier configured intra-frequency measurement. Now, IE 'Replacement activation threshold' is set to 1. MEASUREMENT CONTROL message contains only those IEs that are modified and the UE shall continue to use current values of parameters that are not modified. The UE sends MEASUREMENT REPORT message reporting event 1C, monitored Cell 3 is better than Cell 2 that is in active set. The UE sends second MEASUREMENT REPORT message reporting event 1C after 4 seconds, equals to parameter 'Reporting interval'.

SS then performs soft handover procedure by sending ACTIVE SET UPDATE message on the downlink DCCH. In this message SS commands UE to add Cell 3 and remove Cell 2 from active set. The UE shall reply with an ACTIVE SET UPDATE COMPLETE message. The UE shall also stop periodic reporting of event 1C because the Cell that triggered it is added into active set. SS then configures itself according to the values in columns "T2" shown above. This triggers event 1D and the UE sends MEASUREMENT REPORT message indicating Cell 3 as a best cell. 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	←		ACTIVE SET UPDATE	SS command the UE to add Cell 2 in active set.
2	→		ACTIVE SET UPDATE COMPLETE	
3	←		MEASUREMENT CONTROL	Event 1C and 1D are configured. IE "Replacement activation threshold" is set to 3.
4				SS re-adjusts the downlink transmission power settings according to columns "T1" in table 8.4.1.23-1.
5				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT message.
6	←		MEASUREMENT CONTROL	Measurement configured in step 3 is modified to set parameter 'replacement activation threshold' to 1.
7	→		MEASUREMENT REPORT	Event 1C is triggered. The UE shall report that Cell 3 is better than Cell 2.
8	→		MEASUREMENT REPORT	The UE shall send second report after 4 seconds (Reporting interval)
9	←		ACTIVE SET UPDATE	SS command the UE to replace Cell 2 in active set by Cell 3.
10	→		ACTIVE SET UPDATE COMPLETE	
11				Check for 10 seconds, the UE shall not send MEASUREMENT REPORT message.
12				SS re-adjusts the downlink transmission power settings according to columns "T2" in table 8.4.1.23-1.
13	→		MEASUREMENT REPORT	The UE shall report event 1D change of best cell
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:

ACTIVE SET UPDATE (Step 1)

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	~~0 chips~~Calculated value from Cell synchronisation infomation
- Secondary CPICH info	Not present
~~- DL channelisation code~~ -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	~~Not present~~TRUE
- SCCPCH information for FACH	Not present
~~Radio link removal information~~	~~Not present~~

MEASUREMENT CONTROL (Step 3)

Information Element	Value/Remark
Measurement identity	1
Measurement command	Setup
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	
- Intra-frequency cell removal	~~Not present~~Remove no intra-frequency cells
- New intra-frequency info list	
- Intra-frequency cell id	Id of Cell 3
- Cell info	
- Cell individual offset	6 dBm
- Reference time difference to cell	Not present
- Read SFN indicator	FALSE
- CHOICE mode	FDD
~~- Read SFN Indicato~~r	~~FALSE~~
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 3
- Primary CPICH TX power	Not present
- TX Diversity Indicator	FALSE
- Cell selection and Re-selection Info	Not Present
- Cell for measurement	
- Intra-frequency cell id list	Set to id of cell 1, 2 and 3.
- Intra-frequency measurement quantity	
- Filter Coefficient	0
- Measurement quantity	CPICH RSCP
- Intra-frequency reporting quantity	
- Reporting quantities for active set cells	~~Same as in default message content~~
- SFN-SFN observed time difference reporting indicator	No report
- 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	
- SFN-SFN observed time difference reporting indicator	No report
- 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	1C
- Replacement activation threshold	3
- Reporting amount	16
- Reporting interval	4 seconds
- Hysteresis	4 dB
- Time to trigger	10 mSec
- Reporting cell status	Not present
- Intra-frequency event identity	1D
- Hysteresis	4
- Time to trigger	10 mSec
- Reporting cell status	Not present
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 CONTROL (Step 6)

Information Element	Value/Remark
Measurement identity	1
Measurement command	Modify
- CHOICE measurement type	Intra-frequency measurement
- Intra-frequency cell info list	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	Intra-frequency measurement reporting criteria
- Parameters required for each events	
- Intra-frequency event identity	1C
- Replacement activation threshold	1
- Reporting amount	16
- Reporting interval	4 seconds
- Hysteresis	4 dB
- Time to trigger	10 mSec
- Reporting cell status	Not present
- Intra-frequency event identity	1D
- Hysteresis	4
- Time to trigger	10 mSec
- Reporting cell status	Not present
Measurement reporting mode	Not present
Additional measurement list	Not present
DPCH compressed mode status info	Not present

MEASUREMENT REPORT (Step 7 and 8)

Information Element	Value/Remarks
Measurement identity	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	Checked to see if set to "Intra Frequency Event results"
- Event ID	Check to see if set to "1C"
- Cell measurement event results	
- Primary scrambling code	Check to see if set to Primary scrambling code of Cell 3
- Primary scrambling code	Check to see if set to Primary scrambling code of Cell 2

ACTIVE SET UPDATE (Step 9)

Information Element	Value/Remark
Radio link addition information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 3
- Downlink DPCH info for each RL	
- CHOICE mode	FDD
- Primary CPICH usage for channel estimation	P-CPICH may be used.
- DPCH frame offset	~~0 chips~~Caluculated value from Cell synchronisation information
- Secondary CPICH info	Not present
~~- DL channelisation code~~	
- 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	~~Not present~~TRUE
- SCCPCH information for FACH	Not present
Radio link removal information	
- Primary CPICH Info	
- Primary scrambling code	Primary scrambling code of Cell 2

MEASUREMENT REPORT (Step 13)

Information Element	Value/Remarks
Measurement identity	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	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 3"

8.4.1.23.5 Test Requirement

1.A In steps 7 and 8 the UE shall send MEASUREMENT REPORT message indicating event 1C. IE 'Cell measurement event results' in MEASUREMENT REPORT message shall contain primary scrambling code of Cell 3 and Cell 2 in that order.

1.B In step 5 the UE shall not send MEASUREMENT REPORT message.

1.C In step 11 the UE shall not send MEASUREMENT REPORT message.

2. In step 13 the UE shall send MEASUREMENT REPORT message indicating event 1D. IE 'Cell measurement event results' in MEASUREMENT REPORT message shall contain primary scrambling code of Cell 3.

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3GPP TSG-T1Sig Meeting #24 **Tdoc ⌘ T1S020449**
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CR-Form-v7

CHANGE REQUEST

⌘	**34.123-1**	**CR**	**299**	⌘ **rev**	**-**	⌘	Current version:	**5.0.1**	⌘

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:	⌘	Update of Conformance requirement in test case 11.1.1.1		
Source:	⌘	NEC Australia		
Work item code:	⌘	TEI	***Date:*** ⌘	29/07/2002
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. Incorrect reference to the core specification. 2. Conformance requirements not up to date with core specification.
Summary of change:	⌘	1. Corrected reference in clause 11.1.1.1.2 2. Updated conformance requirement
Consequences if not approved:	⌘	Conformance requirement not in line with core specification.

Clauses affected:	⌘	11.1.1.1.2.

Other specs affected: ⌘

Y	N		
	X	Other core specifications ⌘	
X		Test specifications	34.123-3
	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>

11 Session Management Procedures

11.1 PDP context activation

11.1.1 Initiated by the UE

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 MS 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).

~~PDP context activation shall initiate PS Attach by the UE to establish a GMM context, when the UE is PS Detached.~~

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, ~~then upon receipt of the message ACTIVATE PDP CONTEXT ACCEPT the UE shall stop timer T3380.~~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.

~~In UMTS, both the network and the UE shall store the LLC SAPI and the radio priority in the PDP context.~~

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.~~3.~~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-DEREGISTERED, 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

If 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		
0	SS			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
1	→		DETACH REQUEST	Only sent if the UE attaches at power-up, if not go to step 3. Detach is performed by the UE using MMI or AT Commands
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			SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Registration".
4	→		ATTACH REQUEST	Request attach with Follow-on request pending
4a	SS			The SS starts ciphering and integrity protection.
5	←		ATTACH ACCEPT	Accept attach Negotiated Ready timer value IE should not be included Force to standby indicator set
6	→		ACTIVATE PDP CONTEXT REQUEST	Request a PDP context activation (with static PDP address)
6a	SS			The SS establishes the RAB.
7	←		ACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context activation
8	SS			Wait for T3380 seconds to ensure no further activate request messages come from the UE
9	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	SS sends a modify request to UE for the activated context
10	→		MODIFY PDP CONTEXT ACCEPT (UE TO NETWORK DIRECTION)	UE accepts the modification request from the SS to show context is activated
11	SS			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-T WG1 Meeting #16 **_Tdoc T1-020566_**
Yokohama, Japan, 29th July – 2nd August 2002
3GPP TSG T WG1 SWG SIG #24 **T1S-020545**
Yokohama, Japan
29 Jul – 01 Aug 2002

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1 CR 304** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

*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: ⌘	Modifications and corrections of GMM test case		
Source: ⌘	SONY, Ericsson, Nokia, Motorola, Anite		
Work item code: ⌘	TEI	***Date:*** ⌘	1/08/2002
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 some test cases in order to keep consistency with the changes in TS24.008.
- to change some test cases, reflecting the changes in TS51.010.
- to change some test cases with other reason.

Summary of change: ⌘ 1. Corrections of the test cases, according to the changes in TS24.008

1.1 For subclause 12.6.1.3.3 “Authentication rejected by the UE / fraudulent network”

- In order to keep consistency with the chanege of the core specification, the authentication procedure is corrected.
- In relation to the above-mentioned correction, the Test requirements, the Conformance requirements and the Test procedure are corrected.

2. Corrections based on the changes in TS51.010.

It is proposed to change some test cases as follows, based on the changes in TS51.010 that are informed by TSG-GERAN using the LS (T1S-020379).

2.1 Correction of the handling for P-TMSI signature

- P-TMSI signature IE in ATTACH REQUEST message is removed from the Expected sequence because P-TMSI signature is deleted after the completion of Detach procedure.
- In relation to the above-mentioned correction, the Initial condition for UE is corrected.

2.2 For subclause 12.3.1.2 “PS detach / accepted”

- The test case for P-TMSI handling is introduced because the UE deletes P-TMSI signature after the completion of a detach procedure.

2.3 For subclause 12.3.1.8 “PS detach / abnormal cases / change of cell into new routing area”

- In order to clarify the test scenario, the Expected sequence is modified.
- In relation to the above-mentioned correction the test procedure is corrected.

2.4 For subclause 12.3.2.5 “PS detach / rejected / location area not allowed”

- The Step25 in the Expected sequence is change to optional. There is a possibility that the UE does not perform the normal location update procedure depending on implementations of UEs.

2.5 For subclause 12.4.2.4 “Combined routing area updating / rejected / PLMN not allowed”

- The Step28 in the Expected sequence is change to optional. There is a possibility that the UE does not perform the normal location update procedure depending on implementations of UEs.

2.6 For subclause 12.4.2.5a “Combined routing area updating / rejected / roaming not allowed in this location area”

- In order for the UE not to access to the cell A after it receives ROUTING AREA UPDATE REJECT message from the cell B, the setting of the cell A in step7 of the Expected sequence is corrected.
- The Step18 in the Expected sequence is change to optional. There is a possibility that the UE does not perform the normal location update procedure depending on implementations of UEs.

2.7 For subclause 12.4.2.7 “Combined routing area updating / abnormal cases / attempt counter check / procedure timeout”

- The Step23a in the Expected sequence is change to optional. There is a possibility that the UE does not perform the normal location update procedure depending on implementations of UEs.
- In relation to the above-mentioned correction the test procedure is corrected.

3. Other Changes

3.1 Introduction of the integrity protection procedure for each test case

- In order to clarify the test scenario, the integrity protection procedure is introduced into each Expected sequence.

3.2 Correction of each test case for Equivalent PLMN

- The equivalent PLMNs IE is added to the ATTACH ACCEPT message (or LOCATION UPDATE ACCEPT message or ROUTING AREA UPDATE ACCEPT message) because this IE is missing in the Expected sequence of the following subclauses.

  12.2.1.5b, 12.2.1.5c, 12.2.1.5d, 12.2.2.7a, 12.2.2.7b, 12.2.2.7d, 12.4.1.4a, 12.4.1.4b, 12.4.1.4c, 12.4.2.4, 12.4.2.5c, 12.4.2.5d,

- In relation to the above-mentioned correction, the Initial condition for UE in the following subclauses is corrected.

  12.2.1.5c, 12.2.1.5d, 12.2.2.7d, 12.4.1.4c, 12.4.2.5c, 12.4.2.5d

3.3 For sub clause 12.2.1.5b “PS attach / rejected / No Suitable Cells In Location Area”

- In order to confirm that the UE doesn’t delete an ePLMN list, PS attach procedure is added.
- In relation to the above-mentioned correction, the Test requirements are corrected.

3.4 For sub clause 12.2.1.5c “PS attach / rejected / Location area not allowed”

- In order to confirm that the UE doesn’t delete an ePLMN list, PS attach procedure is added to the Expected sequence.
- In relation to the above-mentioned correction, the Test requirements are corrected.
- The Test procedure 2 is removed. The Test procedure 2 was made for the UE operation mode A. In this test case for GMM procedure, there is no difference in

behavior of the UE, between the UE operation mode A and C.

3.5 For subclause 12.2.1.5d “PS attach / rejected / PS services not allowed in this PLMN”

- The Initial condition for the SS is corrected because the RAI value in this test is not correct.
- In order to confirm that the UE doesn’t delete an ePLMN list, PS attach procedure is added to the Expected sequence.
- In order to clarify the test scenario, the new step 20 is introduced.
- In relation to the above-mentioned correction, the Test requirements are corrected.

3.6 For sub clause 12.2.2.7a “Combined PS attach / rejected / location area not allowed”

- In order to confirm that the UE doesn’t delete an ePLMN list, PS attach procedure is added to the Expected sequence.

3.7 For sub clause 12.2.2.7b “Combined PS attach / rejected / No Suitable Cells In Location Area”

- In order to confirm that the UE doesn’t delete an ePLMN list, PS attach procedure is added to the Expected sequence.
- In relation to the above-mentioned correction, the Test requirements are corrected.

3.8 For subclause 12.2.2.7c “Combined PS attach / rejected / Roaming not allowed in this location area”

- “Two cells” is replaced with “Three cells”.

3.9 For sub clause 12.2.2.7d “Combined PS attach / rejected / PS services not allowed in this PLMN”

- In order to confirm that the UE doesn’t delete an ePLMN list, PS attach procedure is added to the Expected sequence.
- In relation to the above-mentioned correction, the Test requirements are corrected.

3.10 For subclause 12.4.1.4b “Routing area updating / rejected / No Suitable Cells In Location Area”

- Initial condition for the SS is corrected because the RAI value in this test is not correct.

3.11 For subclause 12.4.1.4c “Routing area updating / rejected / PS services not allowed in this PLMN”

- Cell setting for Cell D in step2 of the Expected sequence is removed.
- The Test procedure 2 is removed. The Test procedure 2 was made for the UE operation mode A. In this test case for GMM procedure, there is no difference in behavior of the UE, between the UE operation mode A and C.

3.12 For subclause 12.4.2.5d “Combined routing area updating / rejected / PS services not allowed in this PLMN”

- The Initial condition for the SS is corrected because the RAI value in this test is not correct.
- The Conformance requirement is corrected because the cause value is not correct.

3.13 For subclause 12.6.1.3.1 “Authentication rejected by the UE   GMM cause 'MAC failure'”

- The identity procedure is moved next to the authentication procedure because “IDENTITY REQUEST message” and “IDENTITY RESPONSE message” need integrity protection.
- In relation to the above-mentioned correction, the Test requirements are corrected.

3.14 For subclause 12.9.7c “Service Request / rejected / Roaming not allowed in this location area”

- Initial condition for the SS is corrected because the RAI value in this test is not correct.
- In relation to the above-mentioned correction, the comment in step15 of the Expected sequence is corrected.

3.15 For sub-clause 12.2.1.3.4, 12.2.1.7, 12.2.1.7.2, 12.2.1.7.4, 12.2.2.1.4, 12.4.2.1.4,12.4.2.2.4, 12.4.3.1.4, 12.5.4, 12.6.1.2.4 and 12.8.4.1 (Changes from T1S-020413)

The NAS test cases need to be aligned with respect to the inclusion of RRC signalling. The RRC messages do not in general need to be shown explicitly. It should be enough to give the relevant information in the comments column of the expected sequence.

(1) Relevant RRC procedures are indicated in the comments column as instructions to the SS: E.g. “SS checks that the IE…”, “The SS starts integrity protection”, “The SS releases the RRC connection” etc.

(2) Paging and establishment causes have been added.

(3) Some of the test cases that required more than one cell to be configured in the system simulator have been changed. Mobility information, such as new RA, is indicated by the SS via the UTRAN MOBILITY INFORMATION procedure.

(4) Anywhere the SS should wait for the UE to be in service after entering idle mode, the time is set to 5 seconds.

3.16 For sub-clause 12.9.11 “Service Request / Abnormal cases / Service request procedure collision”(Changes fromT1S-020457)

The TC 12.9.11 is against 3GPP 24.008. UE GMM does ignore the DETACH REQUEST if integrity protection is not started. See 3GPP 24.008 Chapter 4.1.1.1.1.

(1) DETACH REQUEST is now sent before SERVICE REQUEST for data. The procedure is established via integrity protected signaling connection.

Consequences if not approved:	⌘	In consistency with the core specification and editorial mistakes are left.

Clauses affected:	⌘	Various				
		Y	**N**			
Other specs affected:	⌘	☐	☐	Other core specifications	⌘	
		☐	☐	Test specifications		
		☐	☐	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.

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.

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.

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

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~~3a~~	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
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.
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 ~~P-TMSI-2 signature~~ Routing area identity = RAI-1
11a	<-		AUTHENTICATION AND CIPHERING REQUEST	
11b	->		AUTHENTICATION AND CIPHERING RESPONSE	
11c~~a~~	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-1
13	->		ATTACH COMPLETE	
14			Void	
14b			Void	
14c	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.

Step	Direction		Message	Comments
	UE	SS		
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.
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 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
20a		<-	AUTHENTICATION AND CIPHERING REQUEST	
20b		->	AUTHENTICATION AND CIPHERING RESPONSE	
20c~~a~~	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'
25a	SS			The SS releases the RRC connection.
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 25b.

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 UE', 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 UE' 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 UE', 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 UE'.

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).

User Equipment:

The UE has a valid P-TMSI-1, ~~P-TMSI-1 signature~~ 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).
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	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 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
5	<-	ATTACH REJECT	GMM cause = 'Illegal UE'.
			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-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, PS 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.

12.2.1.2.5 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.

User Equipment:

The UE has a valid P-TMSI-1, ~~P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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.
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-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, PS detach'
15a	SS			The SS releases the RRC connection.
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.
    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.

User Equipment:

The UE has a valid P-TMSI-1, ~~P-TMSI-1 signature~~ 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	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 ~~P-TMSI-1 signature~~ 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-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, PS 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".			

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.

User Equipment:

The UE has a valid P-TMSI-1, ~~P-TMSI-1 signature~~ 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	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
3	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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	UE		Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
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-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, PS detach'

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 6 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.

User Equipment:

The UE has a valid P-TMSI-1,~~ P-TMSI-1 signature~~ 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	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 ~~P-TMSI-1 signature~~ 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).
				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.
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	
14	UE			The UE initiates a PS detach (without power off) by MMI or by AT command .
15	->		DETACH REQUEST	Detach type = 'normal detach, PS detach'
16	<-		DETACH ACCEPT	
				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 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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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	UE	Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
3	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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).
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	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	
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'

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).

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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			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.
3a	UE		Registration on CS	See TS 34.108 This is applied only in case of UE operation mode A.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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)
				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.
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).
				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.
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.

Step	Direction		Message	Comments
	UE	SS		
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.
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.
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).
				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.
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).
				The following messages are sent and shall be received on cell F.
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.
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)
				The following messages are sent and shall be received on cell E.

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
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).

User Equipment:

The UE has a valid P-TMSI-1,~~ P-TMSI-1 signature~~ 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			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 "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	UE		Registration on CS	See TS 34.108 This is applied only in case of UE operation mode A.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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).
				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.
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	
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, PS detach'
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~~2~~/MNC1/LAC2~~1~~/RAC1 (RAI-3~~2~~), cell C in MCC2/MNC1/LAC2/RAC1 (RAI-6)

All three cells are operating in network operation mode II.

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

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 same 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	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 Routing area identity = RAI-1
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-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
~~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.~~
~~2a~~9	UE	Registration on CS	See TS 34.108 This is applied only in case of UE operation mode A.
~~3~~10	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
~~4~~11	<-	ATTACH REJECT	GMM cause = 'No Suitable Cells In Location Area'
~~5~~12	SS		The SS initiates the RRC connection release. The following message are sent and shall be received on cell C.
~~6~~13	UE	Registration on CS	See TS 34.108
~~7~~14	UE		The UE initiates an attach automatically, by MMI or by AT command.
~~8~~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~~9~~	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-6
20~~10~~	->	ATTACH COMPLETE	

21~~11~~	UE		The UE is switched off or power is removed (see ICS).
22~~12~~	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
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 ~~step3~~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~~step15, when the UE enters a suitable cell in a different location area on the same 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

~~12.2.1.5c.4.1 Test procedure 1~~

Initial condition

System Simulator:

Three cells cell A with MCC1/MNC1/LAC1/RAC1 (RAI-1), cell B in ~~MCC2~~MCC1/MNC1/LAC1/RAC1 (RAI-~~2~~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 ~~B and~~ C is equivalent to the PLMN that contains Cell A.

User Equipment:

The UE has a valid P-TMSI-1,~~ P-TMSI-1 signature,~~ RAI-1~~ and Equivalent PLMN(MCC = 2, MNC=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		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	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
5	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 Routing area identity = RAI-1 Equivalent PLMNs = MCC2,MNC1
6	<-	DETACH REQUEST	Detach type = re-attach required
7	->	DETACH ACCEPT	
~~2~~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~~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~~10	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~
~~6~~11	<-	ATTACH REJECT	GMM cause = 'Location area not allowed'
~~7~~12	UE		The UE performs cell selection. The following messages are sent and shall be received on cell C.
~~8~~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.
~~9~~17	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-6
~~10~~18	->	ATTACH COMPLETE	
~~11~~19	UE		No MM IMSI attach request sent to SS (SS waits 30 seconds).
~~12~~20	UE		The UE is switched off or power is removed (see ICS).
~~13~~21	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'

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.4.2 Test procedure 2~~

~~Initial condition~~

~~System Simulator:~~

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

- ~~The PLMN contains Cell B is equivalent to the PLMN that contains Cell A.~~

~~User Equipment:~~

- ~~The UE has a valid P-TMSI-1, P-TMSI-1 signature, RAI-1 and Equivalent PLMN(MCC = 2, MNC=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 performs MM IMSI attach 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~~			~~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 " 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	~~UE~~		~~Registration on CS~~	~~See TS 34.108~~ ~~This is applied only for UE in UE operation mode A.~~
5	~~->~~		~~ATTACH REQUEST~~	~~Attach type = 'PS attach'~~ ~~Mobile identity = P-TMSI-1~~ ~~P-TMSI-1 signature~~
6	~~<-~~		~~ATTACH REJECT~~	~~GMM cause = 'Location area not allowed'~~
~~7~~	~~UE~~			~~The UE performs cell selection procedure.~~ ~~The following messages are sent and shall be received on cell C.~~
8			~~Registration on CS~~	~~See TS 34.108~~ ~~This is applied only for UE in UE operation mode A.~~
~~9~~	~~->~~		~~ATTACH REQUEST~~	~~Attach type = 'PS attach'~~ ~~Mobile identity = IMSI~~
~~9a~~	~~<-~~		~~AUTHENTICATION AND CIPHRING REQUEST~~	
~~9b~~	~~->~~		~~AUTHENTICATION AND CIPHRING RESPONSE~~	
~~9c~~	~~SS~~			~~The SS starts integrity protection.~~
~~10~~	~~<-~~		~~ATTACH ACCEPT~~	~~Attach result = 'PS only attached'~~ ~~Mobile identity = P-TMSI-2~~ ~~P-TMSI-2 signature~~ ~~Routing area identity = RAI-6~~ ~~Equivalent PLMNs = MCC2,MNC1~~
~~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'~~
~~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.~~

12.2.1.5c.5 Test requirements

~~Test requirement for test procedure 1~~

At ~~step5~~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 ~~step7~~step12, UE shall:

- perform cell selection.

At ~~step8~~step13, UE shall:

- perform PS attach procedure with Mobile identity = IMSI~~ to the equivalent cell~~.

At ~~step14~~step19, UE shall:

- not perform MM IMSI attach

~~Test requirement for test procedure 2~~

~~At step5, 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 cell selection.~~

~~At step8, UE shall:~~

- ~~perform MM IMSI attach.~~

~~At step9, UE shall:~~

- ~~perform PS attach procedure with Mobile identity = IMSI to the equivalent cell.~~

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 '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.
   1.4 perform a PLMN selection instead of a cell selection.
2) If the UE is in UE operation mode A 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~~2~~).
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.

User Equipment:

The UE has a valid P-TMSI-1,~~ P-TMSI-1 signature,~~ RAI-1~~ and Equivalent PLMN(MCC = 2, MNC=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 UE SS	Message	Comments
	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
6	<-	ATTACH ACCEPT	Attach result = 'PS 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	
~~2~~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)
~~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~~10	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~
~~6~~11	<-	ATTACH REJECT	GMM cause = 'PS service not allowed in this PLMN'
~~7~~12	UE		The UE performs PLMN selection. The following messages are sent and shall be received on cell C.
~~8~~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.
~~9~~17	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-7
~~10~~18	->	ATTACH COMPLETE	
~~11~~19	UE	PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
20	SS		No response from the UE to the request. This is checked for 10 seconds.

~~12~~21	->	RRC CONNECTION REQUEST	
~~13~~22	<-	RRC CONNECTION SETUP	
~~14~~23	->	RRC CONNECTION SETUP COMPLETE	
~~15~~24	->	PAGING RESPONSE	
~~16~~25	<-	RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
~~17~~26	->	RRC CONNECTION RELEASE COMPLETE	
~~18~~27	UE		The UE is switched off or power is removed (see ICS).
~~19~~28	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
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 ~~step7~~step12, UE shall:

- perform PLMN selection.

At step13~~8~~, UE shall:

- perform PS attach procedure with Mobile identity = IMSI to the equivalent cell.

At ~~step12~~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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 UE SS	Message	Comments
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 ~~P-TMSI-1 signature~~ 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-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, PS detach'
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).

User Equipment:

The UE has a valid P-TMSI-2~~, P-TMSI-2 signature~~ 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 SS			The USIM is programmed with access class x. 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 ~~P-TMSI-2 signature~~ 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-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, PS detach'
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 ~~cell into new~~ routing area

12.2.1.7.1 Definition

12.2.1.7.2 Conformance requirement

When a change of ~~cell into a new~~ routing area is performed before ATTACH ACCEPT message is received by the UE, the UE shall abort the PS attach procedure and re-initiate it 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:

~~Two~~One cell~~s~~ ~~(not simultaneously activated), cell A in~~ with MCC1/MNC1/LAC1/RAC1 (RAI-1) ~~and cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4)~~.
~~Both~~ The cell~~s~~ is~~are~~ operating in network operation mode II (in case of UE operation mode A).

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 ~~performs a cell reselection to a cell in a~~ receive a new routing area code. The UE shall re-initiate a PS attach procedure in the new routing area.

Expected Sequence

Step	Direction UE SS	Message	Comments
	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.
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 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
5	SS		No response to the ATTACH REQUEST message is given by the SS.
			~~The following messages are sent and shall be received on cell B.~~
6	~~SS~~	Void	~~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.~~
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.
6b	->	UTRAN MOBILITY INFORMATION CONFIRM	
7	UE		The UE automatically re-initiates the attach. ~~in the new cell.~~
8	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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.
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.~~

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	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	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, ~~when~~ as the UE has received a new RAI in the UTRAN MOBILITY INFORMATION message ~~a change of cell into a new routing area is performed~~ 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~~, P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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-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, PS detach'

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.

12.2.2 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.

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-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~~->~~	~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating conversational call”.
8	~~<-~~	~~RRC CONNECTION SETUP~~Void	
9	~~->~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
10	->	PAGING RESPONSE	Mobile identity = IMSI
11	~~<-~~SS	~~RRC CONNECTION RELEASE~~	~~After sending of this message, the SS waits for disconnection of the CS signalling link.~~The SS releases the RRC connection and waits 5s to allow the UE to read system information.
12	~~->~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
13	<-	PAGING TYPE1	Mobile identity = P-TMSI-1 Paging for PS services Paging cause = “Terminating interactive call”
13a	~~->~~SS	~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating interactive call”.
13b	~~<-~~	~~RRC CONNECTION SETUP~~Void	
13c	~~->~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
14	->	SERVICE REQUEST	service type = "paging response"
14aa	SS		The SS starts integrity protection.
14a	~~<-~~SS	~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection.
14b	~~->~~	~~RRC CONNECTION RELEASE COMPLETE~~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”.

Step	Direction UE SS	Message	Comments
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.
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 ~~P-TMSI-1 signature~~ 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' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-1 Routing area identity = RAI-1
20	->	ATTACH COMPLETE	
21	~~<-~~	~~GMM INFORMATION~~Void	
21b	~~->~~	~~GMM STATUS~~Void	~~Message sent in case the UE does not support reception of GMM information message~~ ~~Cause #97~~
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	~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating conversational call”.
24	~~<-~~	~~RRC CONNECTION SETUP~~Void	
25	~~->~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
26	->	PAGING RESPONSE	Mobile identity = TMSI-1
27	~~<-~~SS	~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection and waits 5s to allow the UE to read system information. ~~After sending of this message, the SS waits for disconnection of the CS signalling link.~~
28	~~->~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
29	<-	PAGING TYPE1	Mobile identity = P-TMSI-2 Paging for PS services Paging cause = “Terminating interactive call”
29a	~~->~~SS	~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating interactive call”.
29b	~~<-~~	~~RRC CONNECTION SETUP~~Void	
29c	~~->~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
30	->	SERVICE REQUEST	service type = "paging response"
30aa	SS		The SS starts integrity protection.
30a	SS~~<-~~	~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection and waits 5s to allow the UE to read system information.

Step	Direction	Message	Comments
	UE SS		
30b	~~->~~	~~RRC CONNECTION RELEASE COMPLETE~~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'
34a	SS		If the power was not removed, the SS releases the RRC connection.
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 ~~P-TMSI-2 signature~~ Routing area identity = RAI-1 TMSI status = valid TMSI available
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	~~RRC CONNECTION REQUEST~~	SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Terminating interactive call".
38b	~~<-~~	~~RRC CONNECTION SETUP~~Void	
38c	~~->~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
39	->	SERVICE REQUEST	service type = "paging response"
39aa	SS		The SS starts integrity protection.
39a	~~<-~~SS	~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection.
39b	~~->~~	~~RRC CONNECTION RELEASE COMPLETE~~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.

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-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, PS detach'

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~~, P-TMSI signature~~ 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 ~~P-TMSI-1 signature~~ 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-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.
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' 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, PS detach'. Stop the sequence.

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~~, P-TMSI signature~~ 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 ~~P-TMSI-1 signature~~ 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' 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, PS detach'

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~~, P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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'

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.

User Equipment:

The UE has a valid TMSI-1, P-TMSI-1~~, P-TMSI-1 signature~~ 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 PS / IMSI attach' or 'PS attach while IMSI attached' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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.

Step	Direction		Message	Comments
	UE	SS		
23	UE			The UE gets the USIM replaced, is powered up or switched on and initiates an attach (see ICS).
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-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 PS / IMSI 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.

12.2.2.4.5 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.

User Equipment:

- The UE has a valid TMSI-1, P-TMSI-1~~, P-TMSI-1 signature~~ 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 UE	Direction SS	Message	Comments
				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 ~~P-TMSI-1 signature~~ 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-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 PS / IMSI 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.

12.2.2.5.5 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

User Equipment:

The UE has a valid TMSI, P-TMSI-1~~, P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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-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 PS / IMSI 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.

12.2.2.6.5 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 ~~B and~~ C is equivalent to the PLMN that contains Cell A.

User Equipment:

The UE has a valid TMSI, P-TMSI~~, P-TMSI signature~~ 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 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 UE SS	Message	Comments
	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 Routing area identity = RAI-1
3b	<-	ATTACH ACCEPT	Attach result = 'Combined PS / 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 PS / IMSI attach' or "PS Attach while IMSI attached" Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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 is only performed for non-auto attach UE and is optional.
20a	UE		Registration on CS	Parameter Mobile identity is IMSI. See TS 34.108
20b	UE			UE initiates an attach automatically (see ICS) 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-TMSI1 P-TMSI-1 signature Mobile identity = TMSI-1 Routing area identity = RAI-6
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'
				The following messages are sent and shall be received on cell B.
40	UE			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 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.

Step	Direction		Message	Comments
	UE	SS		
45	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or "PS Attach while IMSI attached" Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-4
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'
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~~2~~/MNC1/LAC2/RAC1 (RAI-3~~6~~), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2)

User Equipment:

The UE has valid TMSI, P-TMSI~~, P-TMSI signature~~ and RAI

The PLMN contains Cell ~~B and~~ 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		
1	SS			The following message 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 PS / IMSI attach' Mobile identity =P-TMSI-1 Routing area identity = RAI-1
5	<-		ATTACH ACCEPT	Attach result = 'Combined PS / 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
~~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~~9	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
~~4~~10	<-		ATTACH REJECT	GMM cause = 'No Suitable Cells In Location Area'
~~5~~11	SS			The SS initiates the RRC connection release. The following message are sent and shall be received on cell B.
~~6~~12	UE			The UE initiates an attach automatically, by MMI or by AT command.
~~7~~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~~8~~	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-3~~6~~
18~~9~~	->		ATTACH COMPLETE	

19~~10~~	UE		The UE is switched off or power is removed (see ICS).
20~~11~~	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
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 ~~step3~~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 ~~step7~~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~~Two~~ 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~~two~~ cells are operating in network operation mode I.

User Equipment:

The UE has valid TMSI, P-TMSI~~, P-TMSI signature~~ 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 ~~P-TMSI-1 signature~~ 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 = '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-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
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'
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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~, RAI-1~~ and Equivalent PLMN(MCC = 2, MNC=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 Routing area identity = RAI-1
6	<-		ATTACH ACCEPT	Attach result = 'PS 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.
~~4~~10	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =P-TMSI-1 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
~~5~~11	<-		ATTACH REJECT	GMM cause = 'PS service not allowed in this PLMN'
~~6~~	~~UE~~		~~Registration on CS~~	~~See TS 34.108~~ ~~This is applied only for UE in UE operation mode A~~.
~~7~~12	UE			No ATTACH REQUEST sent to the SS (SS waits 30 seconds).
~~8~~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.
~~9~~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~~10~~	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2
19~~11~~	->		ATTACH COMPLETE	
20~~12~~	UE			The UE is switched off or power is removed (see ICS).
21~~13~~	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'
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~~4~~, 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~~6~~, UE shall:

- perform MM IMSI attach.

At ~~step7~~step12, UE shall:

- not perform PS attach procedure.

At ~~step9~~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~~, P-TMSI signature~~ 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 ~~P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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	->		ATTACH REQUEST	Attach type = 'Combined PS/IMSI attach' or 'PS attach while IMSI attached' Mobile identity = IMSI TMSI status =no valid TMSI available
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	

Step	Direction		Message	Comments
	UE	SS		
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	
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'

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 step6, 9, 12 and 15, when the timer T3311 timeout has occurred, UE shall:

- repeat the combine 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~~, P-TMSI signature~~ 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 ~~P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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-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 PS / IMSI detach'

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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 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 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c~~3a~~	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
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.
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 7.

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 UE detaches the IMSI for PS services if the UE is ordered to do so with MMI or AT commands.

2) Upon completion of the subsequent attach, routing area update, service request or detach procedure the used P-TMSI signature shall be deleted.

Reference

3GPP TS 24.008 clause 4.7.4.1.

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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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
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~~.
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 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
3a	<-		AUTHENTICATION AND CIPHERING REQUEST	
3b	->		AUTHENTICATION AND CIPHERING RESPONSE	
3c~~3a~~	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' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-1
5	->		ATTACH COMPLETE	
5~~4~~a	SS			The SS releases the RRC connection.
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'
7a	SS			The SS starts 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 Routing area identity = RAI-1
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'
16	SS -> MS		DETACH ACCEPT	
17~~1~~			(void)	
18~~2~~	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~~0~~.

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 and 15, UE shall:

- sends the DETACH REQUEST message(without power off) to SS.

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.

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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 UE SS	Message	Comments
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 ~~P-TMSI-1 signature~~ 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 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'
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 attaché procedure 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 attaché procedure.

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.

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 … 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-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, 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	
10C (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~~3a~~	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / 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 PS / IMSI detach'
7a	SS			The SS releases the RRC connection.

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~~3a~~	SS			The SS starts integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / 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 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-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" P-TMSI-1 signature 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	
24	UE			The UE is switched off or power is removed (see ICS).

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
25	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, combined PS / IMSI detach'

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 ~~The UE initiates 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 performs a cell update into a new routing area.~~

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-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 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 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-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 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).

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 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	
4~~a~~c	SS		The SS starts integrity protection.
5	<-	ATTACH ACCEPT	Attach result = 'PS 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'
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 except from a possible ATTACH REQUEST (UE may send an ATTACH REQUEST when the Detach type = 're-attach not required'). 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, except from a possible ATTACH REQUEST.

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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 UE SS	Message	Comments
			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 ~~P-TMSI-1 signature~~ 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-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'
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).
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-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, PS detach'
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-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 updating' 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 PS / IMSI detach'

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

The UE shall deactivate the logical link and re-activate it.

Reference

3GPP TS 24.008 clause 4.7.4.2.

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~~, P-TMSI signature~~ 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 (for PS and non-PS services) and PS and CS services are possible.

Expected Sequence

Step	Direction UE SS	Message	Comments
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 ~~P-TMSI-1 signature~~ 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'
8	->	DETACH ACCEPT	
9	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 Routing area identity = RAI-1
10	<-	ATTACH ACCEPT	Attach result = 'Combined PS / 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 PS / IMSI detach'

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.

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 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'.

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

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-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.
22			No response from the UE to the request. This is checked for 10 seconds

Step	Direction		Message	Comments
	UE	SS		
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 is only performed for non-auto attach UE.
25 optional	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-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 / IMSI detach'
46	UE			The following messages are sent and shall be received on cell B. 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.

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
50	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ Routing area identity = RAI-6 TMSI status = valid TMSI available
51	<-		ATTACH ACCEPT	Attach result = 'Combined PS / 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 PS / IMSI 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.

12.3.2.5.5 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 II.

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-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 COMPLETE	
			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-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, PS detach'
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 UE SS	Message	Comments
	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-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
			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 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-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 / IMSI detach'
				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) 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.

Step	Direction		Message	Comments
	UE	SS		
50	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ Routing area identity = RAI-6 TMSI status = valid TMSI available
51	<-		ATTACH ACCEPT	Attach result = 'Combined PS / 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 PS / IMSI 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.

12.3.2.7.5 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.

12.4 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.

Reference

3GPP TS 24.008 clause 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.

12.4.1.1a.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.

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

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.

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". (see note)
2	UE			The UE is set to attach to PS services only (see ICS). If that is not supported byt the UE, goto step 22.
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	

Step	Direction		Message	Comments
	UE	SS		
4b	->		AUTHENTICATION AND CIPHERING RESPONSE	
4c~~4a~~	SS			The SS starts integrity protection.
5	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-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' P-TMSI-2 signature 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-1 P-TMSI-1 signature Routing area identity = RAI-4
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.
				The following messages are sent and shall be received on cell A.
14	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)
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-2 signature Routing area identity = RAI-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".

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
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.
19b	->		Void	
20	UE			The UE is switched off or power is removed (see ICS).
20a	SS			The SS checks that the IE "Establishment cause" in the received RRC CONNECTION REQUEST message is set to "Detach".
21	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
21a	SS			The SS releases the RRC connection.
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 3 to step 21b.
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 and 15a 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 20a 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.

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 I. ATT flag is set to 0.

User Equipment:

The UE has a valid TMSI, P-TMSI-1~~, P-TMSI-1 signature~~ 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 = 'Combined PS / IMSI attach' 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' Mobile identity = P-TMSI-1 P-TMSI-1 signature Mobile identity =IMSI 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 initiates a security mode control procedure.
11	<-		RRC CONNECTION RELEASE	Release cause=Directed Signalling Connection Re-establishment
12	->		RRC CONNECTION RELEASE COMPLETE	
13	->		RRC CONNECTION REQUEST	
14	<-		RRC CONNECTION SETUP	
15	->		RRC CONNECTION SETUP COMPLETE	
16	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' 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, PS detach'

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.

12.4.1.2 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)

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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	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 ~~P-TMSI-1 signature~~ 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' 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 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-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, PS detach'
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).

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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-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 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-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, PS detach'
18				Stop the sequence
19	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 PAGING TYPE1 (used for NW-mode II). Paging order is for PS services.

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
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 shall:

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

    2.2 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 PLMN contains Cell D is equivalent to the PLMN that contains Cell C.

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	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 = 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-1 P-TMSI-1 signature Routing area identity = RAI-3 Equivalent PLMNs = MCC2,MNC1
6	->		ATTACH COMPLETE	
				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.
				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			The following messages are sent and shall be received on cell C. 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 C is preferred by the UE.
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 = 'PS attach' Mobile identity = IMSI
19	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-6
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'
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 ~~P-TMSI-2 signature~~ 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-1 P-TMSI-1 signature Routing area identity = RAI-6
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
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
31	UE			The UE is switched off or power is removed (see ICS).

Step	Direction		Message	Comments
	UE	SS		
32	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
33 34	SS UE			The SS is set in network operation mode II. The UE is set in UE operation mode A (see ICS), cell A is switched off and the test is repeated from step 2 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 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.

   1.3 not delete equivalent PLMNs list.

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~~2~~/MNC1/LAC2/RAC1 (RAI-3~~6~~), cell C in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell D in MCC1/MNC1/LAC1/RAC2 (RAI-4),

All three cells are operating in network operation mode II.

The PLMN contains Cell C~~B~~ is equivalent to the PLMN that contains Cell D.

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 PS attach procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction UE SS	Message	Comments
	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-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
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	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
10	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-3~~6~~
11	->	ATTACH COMPLETE	
12	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
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 PS attach 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.

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

~~Test procedure1~~

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 (in case of UE operation mode A).

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

User Equipment:

The UE has a valid P-TMSI-1,~~ P-TMSI-1 signature,~~ RAI-1~~ and Equivalent PLMN(MCC = 2, MNC=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

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". ~~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.
4	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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-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' 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).
12	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	Attach type = 'PS attach' Mobile identity = IMSI
18	<-		ATTACH ACCEPT	Attach result = 'PS 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, PS detach'
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:~~

- ~~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 (in case of UE operation mode A).~~

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

~~User Equipment:~~

~~The UE has a valid P-TMSI-1, P-TMSI-1 signature, RAI-1 and Equivalent PLMN(MCC = 2, MNC=1).~~

~~The UE is in UE operation mode A.~~

~~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~~

~~The SS rejects a routing area updating with the cause value 'PS services not allowed in this PLMN'. The SS checks that the UE sends ATTACH REQUEST message with Attach type = 'PS attach' to the SS~~

~~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".~~ ~~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.~~
~~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 = 'PS attach'~~ ~~Mobile identity = P-TMSI-1~~ ~~P-TMSI-1 signature~~ ~~Routing area identity = RAI-1~~
~~5a~~	~~<-~~		~~AUTHENTICATION AND CIPHRING REQUEST~~	
~~5b~~	~~->~~		~~AUTHENTICATION AND CIPHRING RESPONSE~~	
~~5c~~	~~SS~~			~~The SS starts integrity protection.~~
~~6~~	~~<--~~		~~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.~~
~~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'~~ ~~Routing area identity = RAI-1~~
~~10~~	~~<--~~		~~ROUTING AREA UPDATE REJECT~~	~~GMM cause = 'PS services not allowed in this PLMN'~~
~~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.~~
~~13~~	~~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)~~
~~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)~~
~~16~~	~~-->~~		~~ATTACH REQUEST~~	~~Attach type = 'PS attach'~~ ~~Mobile identity = IMSI~~

~~17~~	~~<-~~	~~ATTACH ACCEPT~~	~~Attach result = 'PS 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, PS detach'~~
~~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 ~~procedure3~~procedure2

Initial condition

System Simulator:

One cells, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1) operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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-2 P-TMSI-2 signature Routing area identity = RAI-1 T3312 = 6 minutes
5	->		ATTACH COMPLETE	
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'
8	SS			The SS verifies that the time between the attach and the periodic RA updating is T3312
9	->		ROUTING AREA UPDATE REQUEST	Update type = 'Periodic updating' P-TMSI-2 signature Routing area identity = RAI-1
10	<-		ROUTING AREA UPDATE REJECT	GMM cause = 'PS services not allowed in this PLMN'
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'
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 step5, 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 step12, 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 step14, UE shall,~~

- ~~not initiate PS attach procure.~~

~~At step17, UE shall;~~

- ~~initiate the PS attach procedure.~~

Test requirement for Test procedure2~~3~~

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,

- not initiate periodic routing area updating procedure.

At step9, UE shall;

- initiate the routing area updating procedure with the information elements specified in the above Expected Sequence.

At step10, 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 step11, UE shall,

- not initiate periodic routing area updating procedure.

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

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.

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 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 = 'PS 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 "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-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.
20	UE			The UE initiates an attach automatically (see ICS), by MMI or by AT command.
21	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2

Step	Direction		Message	Comments
	UE	SS		
22	<-		ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2
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	
				The following messages are sent and shall be received on cell B.
38	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)
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 UE SS	Message	Comments
	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 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 = 'PS 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 "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-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.
21	->	ATTACH REQUEST	Attach type = ' PS attach ' Mobile identity =IMSI TMSI status = no valid TMSI available
22a	<-	AUTHENTICATION AND CIPHERING REQUEST	

Step	Direction UE SS	Message	Comments
22b	->	AUTHENTICATION AND CIPHERING RESPONSE	
22c	SS		The SS starts integrity protection.
22	<-	ATTACH ACCEPT	Attach result = 'PS 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	->	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
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, PS detach'
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 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.

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 T3330 timeout.

When a T3330 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~~, P-TMSI-1 signature~~ 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.

T3330; set to 15 seconds.

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	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.
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 ~~P-TMSI-1 signature~~ 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' 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	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.
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, PS detach' An IMSI Detach must be performed for an UE in Operation Mode A either before or after the PS Detach
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 T3330 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).

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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-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, PS detach'
18	SS			The SS is set in network operation mode II.

19	UE		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 Routing area updating / abnormal cases / change of cell during routing area updating procedure

12.4.1.7.1 Definition

12.4.1.7.2 Conformance requirement

When a change of cell within a new routing area is performed before the routing area updating procedure is finished, the UE shall perform the cell update before the routing area updating procedure is finished.

Reference

3GPP TS 24.008 clause 4.7.5.1.

12.4.1.7.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.1.7.4 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/RAC2 (RAI-4).
All three cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 within the routing area. The UE then waits for the ROUTING AREA UPDATE ACCEPT message.

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". (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 = P-TMSI-1 ~~P-TMSI-1 signature~~ 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' P-TMSI-2 signature Routing area identity = RAI-1
9	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.
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	SS			Cell C is preferred by the UE.
12a	->		CELL UPDATE	Cell update cause = 'cell reselection'
12b	<-		CELL UPDATE CONFIRM	
13	<-		ROUTING AREA UPDATE ACCEPT	Update result = 'RA updated' Mobile identity = P-TMSI-2 P-TMSI-3 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'
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.

12.4.1.7.5 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, UE shall:

- initiate routing area update procedure.

At step12a, when a change of cell within a new routing area is performed, UE shall:

- perform the cell update before the routing area updating procedure is finished.

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).

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-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, PS detach'
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-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.
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”.

Step	**Direction**	**Message**	**Comments**
	UE SS		
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~~->~~	~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating interactive call”.
10b	~~<-~~	~~RRC CONNECTION SETUP~~Void	
10c	~~->~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
11	->	SERVICE REQUEST	service type = "paging response"
11aa	SS		The SS starts integrity protection.
11a	SS~~<-~~	~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection and waits 5s to allow the UE to read system information.
11b	~~->~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
12	<-	PAGING TYPE1	Mobile identity = IMSI Paging order is for CS services. Paging cause = “Terminating conversational call”
13	~~->~~SS	~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating conversational call”.
14	~~<-~~	~~RRC CONNECTION SETUP~~Void	
15	~~->~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
16	->	PAGING RESPONSE	Mobile identity = IMSI
17	~~<-~~SS	~~RRC CONNECTION RELEASE~~	~~After sending of this message, the SS waits for disconnection of the CS signalling link.~~ The SS releases the RRC connection.
18	~~->~~	~~RRC CONNECTION RELEASE COMPLETE~~Void	
			The following messages are sent and shall be received on cell A.
19	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)
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		~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating interactive call”.
23b	~~<-~~		~~RRC CONNECTION SETUP~~Void	
23c	~~->~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
24	->		SERVICE REQUEST	service type = "paging response"
24aa	SS			The SS starts integrity protection.
24a	~~<-~~SS		~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection and waits 5s to allow the UE to read system information.
24b	~~->~~		~~RRC CONNECTION RELEASE COMPLETE~~Void	
25	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services. Paging cause = “Terminating conversational call”
26	~~->~~ SS		~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating conversational call”.
27	~~<-~~		~~RRC CONNECTION SETUP~~Void	
28	~~->~~		~~RRC CONNECTION SETUP COMPLETE~~Void	
29	->		PAGING RESPONSE	Mobile identity = TMSI-1
30	~~<-~~SS		~~RRC CONNECTION RELEASE~~	~~After sending of this message, the SS waits for disconnection of the CS signalling link.~~ The SS releases the RRC connection.
31	~~->~~		~~RRC CONNECTION RELEASE COMPLETE~~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.
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.

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:

~~Two~~ One cell~~s~~, cell A in MCC1/MNC1/LAC1/RAC1 (RAI-1)~~, cell B in MCC1/MNC1/LAC1/RAC2 (RAI-4). Both cells~~ 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". ~~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-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	~~SS~~		Void	~~Activate cell B with the same signal strength as cell A.~~
8	~~<-~~		Void	~~Handover commanded by SS on to DCH of cell B~~ ~~The following messages are sent and shall be received on cell B.~~
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 TMSI status = no valid TMSI available
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 Mobile identity = IMSI 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 = "combined RA/LA updating", 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-4
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.
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.~~

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~~RF level of the attached cell is lower than the RF level of the new cell during the CS connection~~, 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 UE SS	Message	Comments
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-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, PS detach'
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.
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	

Step	Direction		Message	Comments
	UE	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	->		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	
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

Step	Direction		Message	Comments
	UE	SS		
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, PS detach' Stop the sequence.
				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.
32	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-4
33	->		ATTACH COMPLETE	
				The following messages are sent and shall be received on cell A.
34		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)
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

Step	Direction		Message	Comments
	UE	SS		
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
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

Step	Direction UE SS	Message	Comments
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, PS detach'
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.

12.4.2.4 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 GPRA attach when switched on in the same location area or PLMN.

    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'.

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.

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:

Five cells (not simultaneously activated), cell A in MCC1/MNC2/LAC1/RAC1 (RAI-8), cell B in MCC1/MNC2/LAC1/RAC2 (RAI-10), cell C in MCC1/MNC2/LAC2/RAC1 (RAI-9) and cell D in MCC2/MNC1/LAC1/RAC1 (RAI-2), cell E in MCC1/MNC3/LAC1/RAC1 (RAI-11).

The PLMN containing Cell~~s~~ E~~A, B and C~~ is equivalent to the PLMN that contains Cell A~~E~~.
All five 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 '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

<table>
<tr><th rowspan="2">Step</th><th colspan="2">Direction</th><th rowspan="2">Message</th><th rowspan="2">Comments</th></tr>
<tr><th>UE</th><th>SS</th></tr>
<tr><td></td><td colspan="2">SS</td><td></td><td>The following messages are sent and shall be received on cell A.</td></tr>
<tr><td>1</td><td colspan="2">SS</td><td></td><td>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".
(see note)</td></tr>
<tr><td>2</td><td colspan="2">UE</td><td></td><td>The UE is powered up or switched on and initiates an attach (see ICS.</td></tr>
<tr><td>3</td><td colspan="2">-></td><td>ATTACH REQUEST</td><td>Attach type = 'Combined PS / IMSI attach'
Mobile identity =IMSI
TMSI status = no valid TMSI available</td></tr>
<tr><td>3a</td><td colspan="2"><-</td><td>AUTHENTICATION AND CIPHERING REQUEST</td><td></td></tr>
<tr><td>3b</td><td colspan="2">-></td><td>AUTHENTICATION AND CIPHERING RESPONSE</td><td></td></tr>
<tr><td>3c</td><td colspan="2">SS</td><td></td><td>The SS starts integrity protection.</td></tr>
<tr><td>4</td><td colspan="2"><-</td><td>ATTACH ACCEPT</td><td>Attach result = 'Combined PS / IMSI attached'
Mobile identity = P-TMSI-2
P-TMSI-2 signature
Routing area identity = RAI-8
Mobile identity = TMSI-1
Equivalent PLMNs~~: ~~MCC~~ = ~~1, MNC=3</td></tr>
<tr><td>5</td><td colspan="2">-></td><td>ATTACH COMPLETE</td><td></td></tr>
<tr><td></td><td colspan="2"></td><td></td><td>The following messages are sent and shall be received on cell B and cell E.</td></tr>
<tr><td>7</td><td colspan="2">SS</td><td></td><td>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)</td></tr>
<tr><td>8</td><td colspan="2">UE</td><td></td><td>Cell B is preferred by the UE.</td></tr>
<tr><td>9</td><td colspan="2">-></td><td>ROUTING AREA UPDATE REQUEST</td><td>Update type = 'Combined RA/LA updating'
P-TMSI-2 signature
Routing area identity = RAI-8
TMSI status = valid TMSI available</td></tr>
<tr><td>10</td><td colspan="2"><-</td><td>ROUTING AREA UPDATE REJECT</td><td>GMM cause = 'PLMN not allowed'</td></tr>
<tr><td>11</td><td colspan="2">UE</td><td></td><td>The UE initiates an attach by MMI or AT command.</td></tr>
<tr><td>12</td><td colspan="2">UE</td><td></td><td>No ATTACH REQUEST sent to SS
(SS waits 30 seconds).</td></tr>
<tr><td>12a</td><td colspan="2">SS</td><td></td><td>The SS deactivates cell E.
Set the cell type of cell E to the "Non-Suitable cell".</td></tr>
<tr><td>13</td><td colspan="2"><-</td><td>PAGING TYPE1</td><td>Mobile identity = P-TMSI-2
Paging order is for PS services.</td></tr>
<tr><td>14</td><td colspan="2">UE</td><td></td><td>No response from the UE to the request. This is checked for 10 seconds.</td></tr>
<tr><td></td><td colspan="2"></td><td></td><td>The following messages are sent and shall be received on cell C.</td></tr>
<tr><td>15</td><td colspan="2">SS</td><td></td><td>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)</td></tr>
<tr><td>16</td><td colspan="2">UE</td><td></td><td>Cell C is preferred by the UE.</td></tr>
<tr><td>17</td><td colspan="2">UE</td><td></td><td>The UE initiates an attach by MMI or by AT command.</td></tr>
</table>

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
18	UE			No ATTACH REQUEST sent to 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.
				The following messages are sent and shall be received on cell A.
21	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)
22	UE			Cell A is preferred by the UE.
23	UE			The UE initiates an attach by MMI or by AT command.
24	UE			No ATTACH REQUEST sent to SS (SS waits 30 seconds).
25	<-		PAGING TYPE1	Mobile identity = P-TMSI-2 Paging order is for PS services.
26	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 D.
27	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)
28	UE			Cell D is preferred by the UE.
28a optional	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.
29	UE			The UE initiates an attach automatically (see ICS), by MMI or by AT command.
30	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
31	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2 Mobile identity = IMSI
32	->		ATTACH 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'
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 not initiate a PS attach procedure to cell E.

At step 18 and 24, UE shall:

- not initiate a PS attach procedure.

At step14, 20 and 26, when the UE receives the paging message for PS domain, UE shall:

- not respond to the paging message for PS domain.

At step20, 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 PS attach 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 may perform combined PS attach when a new location area is entered.

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.

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), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6).
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 PS attach 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** **UE SS**	**Message**	**Comments**
	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-2 P-TMSI-2 signature Routing area identity = RAI-2 Mobile identity = TMSI-1
5	->	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~~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 = 'Combined RA/LA updating' P-TMSI-2 signature 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.
18a optional	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 automatically (see ICS), by MMI or by AT command.
20	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity = P-TMSI-2

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
21	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1 P-TMSI-1 signature Routing area identity = RAI-2 Mobile identity = TMSI-1
22	->		ATTACH COMPLETE	
23	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
24	->		RRC CONNECTION REQUEST	
25	<-		RRC CONNECTION SETUP	
26	->		RRC CONNECTION SETUP COMPLETE	
27	->		PAGING RESPONSE	Mobile identity = TMSI-1
28	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
29	->		RRC CONNECTION RELEASE COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = P-TMSI-1 Paging order is for PS services.
30a	->		RRC CONNECTION REQUEST	
30b	<-		RRC CONNECTION SETUP	
30c	->		RRC CONNECTION SETUP COMPLETE	
31	->		SERVICE REQUEST	service type = "paging response"
31a	<-		RRC CONNECTION RELEASE	
31b	->		RRC CONNECTION RELEASE COMPLETE	
				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), cell B in MCC2/MNC1/LAC2/RAC1 (RAI-6). 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.
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-2 Mobile identity = TMSI-1
5	->		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 = 'Combined RA/LA updating' P-TMSI-2 signature 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.
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 automatically (see ICS) by MMI or AT command.
20	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' Mobile identity =IMSI TMSI status = no valid TMSI available
20a	<-		AUTHENTICATION AND CIPHERING REQUEST	

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
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-1 P-TMSI-1 signature Routing area identity = RAI-6 Mobile identity = TMSI-1
22	->		ATTACH COMPLETE	
23	<-		PAGING TYPE1	Mobile identity = TMSI-1 Paging order is for CS services.
24	->		RRC CONNECTION REQUEST	
25	<-		RRC CONNECTION SETUP	
26	->		RRC CONNECTION SETUP COMPLETE	
27	->		PAGING RESPONSE	Mobile identity = TMSI-1
28	<-		RRC CONNECTION RELEASE	After sending of this message, the SS waits for disconnection of the CS signalling link.
29	->		RRC CONNECTION RELEASE COMPLETE	
30	<-		PAGING TYPE1	Mobile identity = P-TMSI-1
30a	->		RRC CONNECTION REQUEST	
30b	<-		RRC CONNECTION SETUP	
30c	->		RRC CONNECTION SETUP COMPLETE	
31	->		SERVICE REQUEST	service type = "paging response"
31a	<-		RRC CONNECTION RELEASE	
31b	->		RRC CONNECTION RELEASE COMPLETE	
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'
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 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.

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 II.

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

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 perform PS attach procedure when the UE enters a suitable cell in a different location area on the same PLMN.

Expected Sequence

Step	Direction UE SS	Message	Comments
	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-1 P-TMSI-1 signature Routing area identity = RAI-4 Mobile identity = IMSI Equivalent PLMN: MCC = 1, MNC=2
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 "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' The following message are sent and shall be received on cell B.
9	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-1
10	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-3 Equivalent PLMN: MCC = 1, MNC=2
11	->	ATTACH COMPLETE	

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'
16			The following message are sent and shall be received on cell E.
17	->	ATTACH REQUEST	Attach type = 'Combined PS / IMSI attached' Mobile identity = IMSI
18	<-	ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-3 P-TMSI-3 signature Routing area identity = RAI-5 Equivalent PLMN: MCC=1. MNC=2~~1~~
19	->	DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
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 PS attach 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 PS attach 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.

User Equipment:

The UE has a valid IMSI.~~and Equivalent PLMN(MCC = 2, MNC=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 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 UE SS	Message	Comments
			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-2 P-TMSI-2 signature Routing area identity = RAI-2 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-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-1 P-TMSI-2 signature Routing area identity = RAI-6 Mobile identity = TMSI-2
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'
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~~'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.
- 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~~1~~/LAC1~~2~~/RAC1 (RAI-8~~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.

User Equipment:

The UE has a valid IMSI.~~and Equivalent PLMN(MCC = 2, MNC=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 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-2 P-TMSI-2 signature Routing area identity = RAI-1~~2~~ 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~~2~~
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-1 P-TMSI-2 signature Routing area identity = RAI-6 Mobile identity = TMSI-2
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'
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-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	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 PS/IMSI detach'
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-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	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' 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 PS/IMSI detach'
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 ~~performs~~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-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 "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 – 22 is repeated four times with k = 2, k = 3, k = 4 and k = 5
23a optional	UE		Registration on CS	The UE may ~~performs~~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' 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 PS/IMSI 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.

12.4.2.7.5 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 UE | SS	Message	Comments
	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-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		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' 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 PS/IMSI detach'
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 Combined routing area updating / abnormal cases / change of cell during routing area updating procedure

12.4.2.9.1 Definition

12.4.2.9.2 Conformance requirement

When a change of cell within new routing area is performed before the routing area updating procedure is finished, the UE shall perform the cell update before the routing area updating procedure is finished.

Reference

3GPP TS 24.008 clause 4.7.5.2.

12.4.2.9.3 Test purpose

To test the behaviour of the UE in case of procedure collision.

12.4.2.9.4 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/RAC2 (RAI-4).
All three 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. The ROUTING AREA UPDATE ACCEPT message is delayed from the SS. The UE performs a cell update within the routing area. The UE then waits for the ROUTING AREA UPDATE ACCEPT message.

Expected Sequence

Step	**Direction** **UE SS**	**Message**	**Comments**
	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-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		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 until cell C is preferred by the UE.
12a	->	CELL UPDATE	Cell update cause = 'cell reselection'
12b	<-	CELL UPDATE CONFIRM	
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-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'
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.

12.4.2.9.5 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 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 step12a, when a change of cell within a new routing area is performed before the routing area updating procedure is finished, UE shall:

- perform the cell update.

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-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~~, P-TMSI signature~~ 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-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 = '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 PS/IMSI detach'
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).

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 ~~P-TMSI-1 signature~~ 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-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, PS detach'
10a	SS		If the power was not removed, the SS releases the RRC connection.
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~~, P-TMSI-1 signature~~ 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 is omitted. 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 UE SS	Message	Comments
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 ~~P-TMSI-1 signature~~ 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-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 = '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'

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~~, P-TMSI-1 signature~~ 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 UE SS	Message	Comments
	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 ~~P-TMSI-1 signature~~ 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-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 PS / IMSI detach'
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~~, P-TMSI-1 signature~~ 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).
2	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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-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 = 'RAupdated' P-TMSI-3 signature Routing area identity = RAI-1
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'

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 combined 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.

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-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, PS detach'
9a	SS			If the power was not removed, the SS releases the RRC connection.
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 ~~P-TMSI-2 signature~~ 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		~~RRC CONNECTION REQUEST~~	SS checks that the IE “Establishment cause” in the received RRC CONNECTION REQUEST message is set to “Terminating interactive call”.

16	~~<-~~	~~RRC CONNECTION SETUP~~Void	
17	~~->~~	~~RRC CONNECTION SETUP COMPLETE~~Void	
18	->	SERVICE REQUEST	service type = "paging response"
18a	SS		The SS starts integrity protection.
19	~~<-~~SS	~~RRC CONNECTION RELEASE~~	The SS releases the RRC connection.
20	~~->~~	~~RRC CONNECTION RELEASE COMPLETE~~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.

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.

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 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-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, PS detach'
16a	SS			The SS releases the RRC connection.
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 16.
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.

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 former P-TMSI 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 UE SS	Message	Comments
			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	UE	Registration on CS	See TS 34.108 This is applied only for UE in UE operation mode A.
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
~~3a~~	~~<-~~	~~AUTHENTICATION AND CIPHERING REQUEST~~	
~~3b~~	~~->~~	~~AUTHENTICATION AND CIPHERING RESPONSE~~	
~~3c~~	~~SS~~		~~The SS starts integrity protection.~~
4	~~<-~~	~~ATTACH ACCEPT~~Void	~~Attach result = 'PS only attached'~~ ~~Mobile identity = P-TMSI-1~~ ~~P-TMSI-1 signature~~ ~~Routing area identity = RAI-1~~
5	~~->~~	~~ATTACH COMPLETE~~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		If possible (see ICS) 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-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.
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 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 and starts timer T3214.

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.

T3360; set to 6 seconds.

T3318; set to 5 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". 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 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).
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'
~~10~~	~~<-~~	~~IDENTITY REQUEST~~	~~Identity type = IMSI~~
~~11~~	~~->~~	~~IDENTITY RESPONSE~~	~~Mobile identity = IMSI~~
10~~3~~	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. Including PS-CSKN-1
11~~4~~	->	AUTHENTICATION AND CIPHERING RESPONSE	RES
12~~5~~	SS		The SS checks the RES value.
13	<-	IDENTITY REQUEST	Identity type = IMSI
14	->	IDENTITY RESPONSE	Mobile identity = IMSI
15		Void	
16	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
17	->	ATTACH COMPLETE	
			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)
19	->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1 PS-CKSN-1
20	SS		The value of PS-CKSN is checked
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	UE		The UE is switched off or power is removed (see ICS).
24	->	DETACH REQUEST	Message is not sent if power is removed. Detach type = 'power switched off, PS detach'
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 IDENTITY REQUEST message with Identity type = IMSI from SS, UE shall:~~

- ~~send the IDENTITY RESPONSE message with Mobile identity = IMSI to SS.~~

At step10~~4~~, 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 step13, 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.

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 and starts timer T3214.

SS re-initiates an authentication and ciphering procedure.

T3360; set to 6 seconds.

T3320; set to 15 seconds.

Expected Sequence

Step	Direction UE SS	Message	Comments
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)
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).
4	->	ATTACH REQUEST	Attach type = 'PS attach' Mobility identity = IMSI
5	<-	AUTHENTICATION AND CIPHERING REQUEST	Request authentication. SQN is out of range.
6	SS		The SS starts the timer T3360
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
11	SS		The SS checks the RES value.
12	<-	ATTACH ACCEPT	Attach result = 'PS only attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-1
13	->	ATTACH COMPLETE	
14	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)
15	->	ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature Routing area identity = RAI-1 PS-CKSN-1

Step	**Direction**		**Message**	**Comments**
	UE	**SS**		
16	SS			The value of PS-CKSN is checked
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, PS detach'
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 step10, 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

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.

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 in the authentication check, then the UE shall treat the cell where the AUTHENTICATION & CIPERHERING REQUEST message was received as barred, until System Information is refreshed.~~

Reference

3GPP TS 24.008 clause 4.7.7.6.1.

12.6.1.3.3.3 Test purpose

To test UE treating a cell as barred:

1. when the network sends the second 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.

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, which fails again. Next, the UE shall attempt to attach to cell B, which again fails. In this case T3318 expires after the second attempt.

The UE sends AUTHENTICATION AND CIPHERING FAILURE message to the SS indicating authentication failure.

The SS repeats a third time the authentication procedure, which fails again. Next, the UE shall attempt to attach to cell B, which again fails. In this case T3318 expires after the second attempt.

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'
7a	<-		AUTHENTICATION AND CIPHERING REQUEST	Request for authentication. Invalid Message Authentication Code (MAC).
7b	->		AUTHENTICATION AND CIPHERING FAILURE	GMM cause='MAC failure'
8	SS			SS verifies that the UE does not attempt to access the network for 30s.
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, UE shall:

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

At step5, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), UE shall:

- send the AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step7, when the UE receives the second AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) from the network during a timer T3318 is running, UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step7b, when the UE receives the third AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC) from the network during a timer T3318 is running, UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step8, after the UE sends third AUTHENTICATION AND CIPHERING FAILURE message to the SS, the UE shall:

- not attempt to access the network , until the system information data is refreshed.

At step11, when the activated cell is changed from cell A to cell B, UE shall:

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

At step13, when the UE receives the AUTHENTICATION AND CIPHERING REQUEST message with invalid Message Authentication Code (MAC), UE shall:

- send an AUTHENTICATION AND CIPHERING FAILURE message with GMM cause 'MAC failure' to the SS.

At step17, when the timer T3318 is expired, 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.

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 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~~Void~~	
5a	->		AUTHENTICATION AND CIPHERING RESPONSE	
5b~~5a~~	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-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, PS detach'
13a	SS			The SS releases the RRC connection.
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 13b.

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

The READY timer is not applicable for UMTS.

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 the functionality of the READY timer.

12.8.4 Method of test

12.8.4.1 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/RAC1 (RAI-1).
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

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". 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). 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
5	->		ATTACH COMPLETE	
5a	SS			The SS releases the RRC connection.
6	UE			The UE is switched off or power is removed (see ICS).
6a	SS			SS checks that the IE “Establishment cause” in any received RRC CONNECTION REQUEST message is set to “Detach”.
7	->		DETACH REQUEST	Message not sent if power is removed. Detach type = 'power switched off, PS detach'
7a	SS			If the power was not removed, the SS releases the RRC connection.
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.

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.

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

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	<-		AUTHENTICATION AND CIPHERING REQUEST	
9	->		AUTHENTICATION AND CIPHERING RESPONSE	
9a	SS			The SS starts integrity protection and 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.
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 11b.

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.

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

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-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, PS detach'
11a	SS			The SS releases the RRC connection.
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 11b.

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 step6, 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.
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 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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~, 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

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 UE SS	Message	Comments
			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).
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 ~~P-TMSI-1 signature~~ 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.
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	
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		USIM is removed.

Step	Direction		Message	Comments
	UE	SS		
24	UE			USIM is inserted.
25	UE			The UE initiates a PS attach, by MMI or by AT command.
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	
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	<-		AUTHENTICATION AND CIPHERING REQUEST	
32	->		AUTHENTICATION AND CIPHERING RESPONSE	
33	SS			The SS initiate a security mode control procedure.
34	SS			After the security mode control procedure is completed, 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'

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 USIM is replaced, 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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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).
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 ~~P-TMSI-1 signature~~ 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.
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-2
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"
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		USIM is removed.
24	UE		USIM is inserted.

Step	Direction		Message	Comments
	UE	SS		
25	UE			The UE initiates a PS attach, by MMI or by AT command.
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-3
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	<-		AUTHENTICATION AND CIPHERING REQUEST	
32	->		AUTHENTICATION AND CIPHERING RESPONSE	
33	SS			The SS initiate a security mode control procedure.
34	SS			After the security mode control procedure is completed, 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'

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 USIM is replaced, 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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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).
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 ~~P-TMSI-1 signature~~ 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.
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	
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	<-		AUTHENTICATION AND CIPHERING REQUEST	
17	->		AUTHENTICATION AND CIPHERING RESPONSE	
18	SS			The SS initiate a security mode control procedure.
19	SS			After the security mode control procedure is completed, 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'

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 LAI or 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/MNC1/LAC1/RAC1 cell B in MCC2/MNC1/LAC1/RAC1.
All two cells are operating in network operation mode II.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 UE SS	Message	Comments
			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).
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 type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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 LAI or 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.
17	UE		The UE initiates an attach automatically, by MMI or by AT command.
18	->	ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = IMSI
18a	<-	AUTHENTICATION AND CIPHERING REQUEST	
18b	->	AUTHENTICATION AND CIPHERING RESPONSE	
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	
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 step12, 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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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).
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'

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.
2) store the LAI or the PLMN identity in the list of 'forbidden location areas for roaming'.
3) 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.

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 rejects a Service request with the cause value 'No Suitable Cells In Location Area'. The SS checks that the UE shall perform PS attach 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 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 ciphering and integrity protection.
4	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI 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" The following message are sent and shall be received on cell B.
10	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1
10a	<-		AUTHENTICATION AND CIPHERING REQUEST	
10b	->		AUTHENTICATION AND CIPHERING RESPONSE	
10c	SS			The SS starts ciphering and integrity protection.
11	<-		ATTACH ACCEPT	Mobile identity = P-TMSI-2 P-TMSI-2 signature Routing area identity = RAI-2 Attach result = 'PS only attached'
12	->		ATTACH COMPLETE	
13	UE			The UE is switched off or power is removed (see ICS).
14	->		DETACH REQUEST	
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 PS attach 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~~2~~/RAC1 (RAI-2~~6~~)

All three cells are operating in network operation mode I.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 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 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 ~~P-TMSI-1 signature~~ 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"
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	UE			No ATTACH REQUEST sent to the SS (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.
14	->		ATTACH REQUEST	Attach type = 'Combined PS / IMSI attach' or "PS Attach while IMSI attached" Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ Routing area identity = RAI-1
14a	<-		AUTHENTICATION AND CIPHERING REQUEST	
14b	->		AUTHENTICATION AND CIPHERING RESPONSE	
14c	SS			The SS starts integrity protection.
15	<-		ATTACH ACCEPT	Attach result = 'Combined PS / IMSI attached' Mobile identity = P-TMSI-2 P-TMSI-2 signature Mobile identity = TMSI-2 Routing area identity = RAI-2~~6~~
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, combined PS / IMSI detach'
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 step12, when the UE enters a different location area, UE shall:

- initiate the combined PS attach 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.

Initially, an access class X is barred.

System Simulator:

One cell operating in network operation mode II.

Access class x barred.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 USIM is set up Access class x. The access class x is barred in cell A. The UE is powered up or switched on and attempt to initiate an ATTACH.
2	UE			No SERVICE REQUEST sent to SS, as access class X is barred. (SS waits 30 seconds)
3	SS			The access class x is not barred anymore.
4	UE			The UE automatically initiates an attach.
5	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-2 ~~P-TMSI-2 signature~~ 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	
8	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	<-		AUTHENTICATION AND CIPHERING REQUEST	
11	->		AUTHENTICATION AND CIPHERING RESPONSE	
11a	SS			The SS initiates a security mode control procedure.
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'

Specific message contents

None.

12.9.8.5 Test requirements

At step2, when the UE access class x is barred, UE shall:

- not perform Service Request procedure.

At step5, when the UE access class x is barred, UE shall:

- initiate the PS attach 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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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 UE initiates the routing area update procedure.

c) The UE aborts Service request procedure and performs Routing area updating procedure.

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).
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 ~~P-TMSI-1 signature~~ 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	
	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	SS			Activate cell B with a lower signal strength than cell A The RF level of cell A is lowered until cell B is preferred by the UE.
9	UE			The UE aborts Service request procedure.
				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) The following message are sent and shall be received on cell B.
10	->		ROUTING AREA UPDATE REQUEST	Update type = 'RA updating' P-TMSI-2 signature
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 an upper-layer signalling, e.g., Active PDP Context request, 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 initiate 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'

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.

12.9.9.5 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 step10, when the routing area update procedure is initiated before the security mode control procedure is completed, UE shall;

- abort a 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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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).
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 ~~P-TMSI-1 signature~~ 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'

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.

~~When the UE in GMM-SERVICE-REQUEST-INITIATED state receives a DETACH REQUEST message from the network, UE shall:~~

- ~~perform the PS detach procedure.~~
- ~~abort Service request procedure.~~

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.

User Equipment:

The UE has a valid P-TMSI-1~~, P-TMSI-1 signature~~ 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”. ~~before the security procedure is not started.~~

c) After the UE receives the DETACH REQUEST message, the ~~UE aborts the Service request~~ 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).
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 ~~P-TMSI-1 signature~~ 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 = "~~signalling~~data"
9	SS			The SS does not respond to SERVICE REQUEST message.
10	<-		DETACH REQUEST	~~GMM cause~~ Detach type = "re-attach required~~request~~"
10a	->		DETACH ACCEPT	
11	->		ATTACH REQUEST	Attach type = 'PS attach' Mobile identity = P-TMSI-1 ~~P-TMSI-1 signature~~ 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	~~No new mobile identity assigned.~~ ~~P-TMSI and P-TMSI signature not included.~~ 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'

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;

- ~~abort the Service request procedure~~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.

3GPP TSG-T1S Meeting #16 **T1-020568**
Yokohama, Japan, 29th July – 2nd August 2002

3GPP TSG-T1Sig Meeting #24 ***Tdoc* ⌘ *T1S020548***
Yokohama, Japan, 29th – 31st July 2002

CR-Form-v7

CHANGE REQUEST

⌘ **34.123-1 CR 306** ⌘ **rev** **-** ⌘ Current version: **5.0.1** ⌘

*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:	⌘	Clarifications in PDP Context deactivation test cases (revision of T1S020450)
Source:	⌘	NEC Australia
Work item code:	⌘	TEI
Date:	⌘	29/07/2002
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. Usage of T3390 not clear from expected sequence.
2. 'Conformance requirement' in test cases 11.3.1 and 11.3.2 not in line with core specification.

Summary of change: ⌘
1. Updated 'Conformance requirement' clausess 11.3.1.2 and 11.3.2.2.
2. Clarifired 'Expected sequence' and 'Specific message contents' in clause 11.3.1.4.
3. Clarified 'Specific message contents' in clause 11.3.2.4.

Change in T1S020548:

Comments in 'Expected sequence', Step 6 and 7 corrected to avoid usage of UE timer T3390 in SS.

Consequences if not approved: ⌘ TTCN implementation of the test case might be incorrect.

Clauses affected: ⌘ 11.3.1 and 11.3.2.

Other specs affected: ⌘

Y	N		
	X	Other core specifications ⌘	
X		Test specifications	34.123-3
	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>

11.3 PDP context deactivation procedures

11.3.1 PDP context deactivation initiated by the UE

11.3.1.1 Definition

11.3.1.2 Conformance requirement

In order to deactivate a PDP context, the UE sends a DEACTIVATE PDP CONTEXT REQUEST message to the network, enters the state PDP-INACTIVE-PENDING and starts timer T3390. The ~~DEACTIVATE PDP CONTEXT REQUEST~~ message ~~sent by UE~~ contains the transaction identifier (TI) in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

- #26: insufficient resources;
- #36: regular PDP context deactivation; or
- #37: QoS not accepted.

The network shall reply with the DEACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the DEACTIVATE PDP CONTEXT ACCEPT message, the UE shall stop timer T3390. In UMTS, the network shall initiate the release of Radio Access Bearer associated with this PDP context.~~Upon receipt of the DEACTIVATE PDP CONTEXT ACCEPT message, the UE shall stop timer T3390.~~

Whenever any session management message except REQUEST PDP CONTEXT ACTIVATION or SM-STATUS is received by the UE specifying a transaction identifier which is not recognised as relating to an active context or to a context that is in the process of activation or deactivation, the UE shall send a SM-STATUS message with cause #81 "invalid transaction identifier value" using the received transaction identifier value including the extension octet and remain in the PDP-INACTIVE state.

Reference

3GPP TS 24.008 clauses 6.1.3.4, 6.1.3.4.1 and 8.3.2 (b).

11.3.1.3 Test purpose

To test the behaviour of the UE upon receipt of a DEACTIVATE PDP CONTEXT ACCEPT message from the SS in PDP context deactivation procedure initiated by the UE.

11.3.1.4 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 the 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 to the SS. The SS shall then reply with a DEACTIVATE PDP CONTEXT ACCEPT message. The SS shall then wait for T3390 seconds to ensure T3390 has been stopped and that no further messages are sent from the UE. The SS shall then send a MODIFY PDP CONTEXT REQUEST for the deactivated context and the UE shall reply with an SM STATUS message with cause #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 Conversational Call, Originating Streaming Call, Originating Interactive Call, Originating Background Call or Originating High Priority Signalling
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	←		DEACTIVATE PDP CONTEXT ACCEPT	SS ~~A~~accepts the PDP context deactivation and starts waiting for 'T3390'.
6a	SS			The SS releases the RAB.
7	SS			SS ~~W~~waits for expiry of 'T3390' seconds to ensure no further deactivate request messages are sent
8	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the deactivated context.
9	→		SM STATUS	Cause set to #81

Specific message contents

Steps 2 and 5.TI flag (bit 8) in TI IE is set to 0 (transaction initiated by the UE).

Step 3, 6 and 8. TI flag in TI IE is set to 1.

Steps 2, 3, 5, 6 and 8. The value of TIO IE (bits 5-7) of the transaction identifier (TI) is the same in these test steps.~~None~~.

11.3.1.5 Test requirements

At step 1a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to one of the following causes:

- Originating Conversational Call;
- Originating Streaming Call;

- Originating Interactive Call;
- Originating Background Call or
- Originating High Priority Signalling.

In PDP context deactivation procedure initiated by the UE, upon receipt of a DEACTIVATE PDP CONTEXT ACCEPT message from the SS, the UE shall deactivate PDP context associated with given PDP address and TI.

Then, upon modification procedure initiated by the network, for deactivated PDP context, UE shall reply with SM STATUS message with cause #81.

11.3.2 PDP context deactivation initiated by the network

11.3.2.1 Definition

11.3.2.2 Conformance requirement

In order to deactivate a PDP context, the network sends a DEACTIVATE PDP CONTEXT REQUEST message to the MS and starts timer T3395. The ~~DEACTIVATE PDP CONTEXT REQUEST~~ message ~~sent by SS~~ contains the transaction identifier in use for the PDP context to be deactivated and a cause code that typically indicates one of the following causes:

36: regular PDP context deactivation;

38: network failure; or

39: reactivation requested.

~~The UE shall, upon receipt of the DEACTIVATE PDP CONTEXT REQUEST message from network, reply with a DEACTIVATE PDP CONTEXT ACCEPT message.~~The UE shall, upon receipt of this message, reply with a DEACTIVATE PDP CONTEXT ACCEPT message. Upon receipt of the DEACTIVATE PDP CONTEXT ACCEPT message, the network shall stop the timer T3395. In UMTS, the network shall initiate the release of Radio Access Bearer associated with this PDP context.

Reference

3GPP TS 24.008 clauses 6.1.3.4, 6.1.3.4.2.

11.3.2.3 Test purpose

To test the behaviour of the UE upon receipt of a DEACTIVATE PDP CONTEXT REQUEST message from the SS.

11.3.2.4 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. A DEACTIVATE PDP CONTEXT REQUEST message is then sent by the SS. The UE shall reply with a DEACTIVATE PDP CONTEXT ACCEPT message. The SS shall then send a MODIFY PDP CONTEXT REQUEST for the deactivated context and the UE shall reply with an SM STATUS message with cause #81 'invalid transaction identifier value'.

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 Conversational Call, Originating Streaming Call, Originating Interactive Call, Originating Background Call or Originating High Priority Signalling
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	←		DEACTIVATE PDP CONTEXT REQUEST	Request a deactivation of a PDP context
5	→		DEACTIVATE PDP CONTEXT ACCEPT	Accept the PDP context deactivation.
5a	SS			The SS releases the RAB.
6	←		MODIFY PDP CONTEXT REQUEST (NETWORK TO UE DIRECTION)	Send a modify request to UE for the deactivated context.
7	→		SM STATUS	Cause set to #81

Specific message contents

Steps 2 and 5. TI flag (bit 8) in TI IE is set to 0 (transaction initiated by the UE).

Steps 3, 4 and 6. TI flag in TI IE is set to 1.

Steps 2, 3, 4, 5 and 6. The value of TIO IE (bits 5-7) of the transaction identifier (TI) is the same in these test steps.

~~None.~~

11.3.2.5 Test requirements

At step 1a the UE shall send an RRC CONNECTION REQUEST message with the IE Establishment cause set to one of the following causes:

- Originating Conversational Call;
- Originating Streaming Call;
- Originating Interactive Call;
- Originating Background Call or
- Originating High Priority Signalling.

Upon receipt of a request for deactivation of a PDP context from the SS, the UE shall deactivate PDP context. Then, upon modification procedure initiated by the network, for deactivated PDP context, UE shall reply with SM STATUS message with cause #81, as confirmation that previously SS requested PDP context deactivation was performed by the UE.

<End of modified section>